MOTHER TONGUE

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Special Report on ASLIP Business

Secretary-Treasurer's Report on a Recent Polling of Member's Views on Two Matters
Harold C. Fleming, Secretary-Treasurer

Starting in October 2008 and arbitrarily terminated as of March 1st, 2009, ASLIP members have been asked to give two answers, the one a vote for two candidates for the Council of Fellows and the other a question about how much they used our MTLR web site for group discussions. The answers (as of mid-April) are, as follows:

Council of Fellows: Vladimir Dybo and George Starostin were nominated for membership on the Council of Fellows. George Starostin received 55% of the votes, while Vladimir Dybo received 19%. Some 36% of those voting either abstained or ignored the question. Therefore by our traditional rules: both were elected. Congratulations, good colleagues! (There were no negative votes.)

On the question of watching or participating in discussions on our web site or forum, called MTLR, members were asked how often they watched or participated. The results are: **23%** said they did so Frequently, **03%** said they did so Sometimes, **24%** said they did so Seldom, and **13%** said they never did so. Another **37%** failed to reply at all. Therefore an obvious conclusion is that –for whatever reasons –only **26%** of members reporting participate very often, **while nearly three out of four do not** have much to do with the MTLR site. Since another **third** of the membership had not yet sent back their questionnaires (or paid their dues), one is not encouraged to believe that MTLR reflects the opinions of most of our membership. If later results change this profile, we will report it to you. Indeed as a frequent participant in the discussions my personal view is that the discussions are largely carried on by non-members, many of whom could use a little exposure to ***MOTHER TONGUE,*** while others want to turn the discussions towards their own theoretical interests (in linguistics).

I would recommend that the Board of Directors appoint a committee to re-examine the MTLR Forum.

Respectfully submitted,
Harold C. Fleming

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Twenty Years of Language in Prehistory • Ann Arbor Symposium • November 1988

Mother Tongue XIII (2008) · Commemorative Issue

Twenty Years of Language in Prehistory · 1988-2008

November 2008 marked the 20th anniversary of the **First International Interdisciplinary Symposium on Language and Prehistory** organized by Vitaly Shevoroshkin and Benjamin Stolz. The Symposium was held on the University of Michigan Ann Arbor campus on November 8-12, 1988. We consider this conference, which brought 46 scholars from around the world to discuss long-range linguistic classification and its implications for human prehistory, a pivotal event in the development of our present-day paleolinguistic community, including ASLIP. See the special section later in this issue.

First we commemorate two eminent scholars who died in 2008-2009, **Geoffrey O'Grady** and **Kamil Zvelebil.**

The News section includes a discussion of recent developments in bio-genetics, followed by some news from our colleagues in Moscow.

In the articles section we are happy to have contributions from six of the participants in the 1988 Symposium: *Václav Blažek, Allan R. Bomhard, Harold C. Fleming, Irén Hegedűs, Mark Kaiser* (as a translator), *and Vitaly Shevoroshkin.*

Vladislav Markovich Illich-Svitych (1934-1966) was tragically killed in an accident 22 years before the Symposium, but his spirit as a founder of the Moscow School's Nostratic hypothesis was very much alive amongst the sixteen Eastern European scholars who attended. Thanks to *Vitaly Shevoroshkin, Mark Kaiser,* and *Maria Polinsky* we are able to include two English translations of Illich-Svitych's works.

New articles by *George van Driem, Jonathan Morris, M. Sreenathan* and *V.R. Rao* continue the Language and Prehistory tradition.

We can hope that the next two decades of Language and Prehistory will be as productive and engaging as the past two!

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Kamil Zvelebil
(Nov. 17, 1927 – Jan. 17, 2009)

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Kamil Zvelebil studied the English language, Indology, philosophy and literature at the Charles University in Prague from 1946 to 1952. After obtaining the Ph.Dr. degree in 1952 he was employed as a senior research fellow in Tamil and Dravidian linguistics and literature at the Oriental Institute of the Czechoslovak Academy of Sciences till 1970. In 1965 he successfully defended his habilitation thesis and became a docent of Dravidian philology. From 1960 to 1965 he was a teacher of the Tamil language and literature at the Charles University in Prague. In the mid 1960s he was a temporary professor in Dravidian studies at the University of Chicago (1965-66), and later he became an ordinary professor there (1968-70). In 1970 he was briefly a visiting professor at the Collège de France in Paris, and in 1970-71 he worked at Leiden University. At the same time he taught his courses at the Institute of South Asia of the University of Heidelberg (1967-73). In the meantime he had lost his homeland after the Soviet occupation of Czechoslovakia in August 1968. Finally he found his stable niche at the University of Utrecht and his second homeland in the Netherlands (1971). He remained there till his retirement in 1991, when he moved to Languedoc in France (Occitanian was one of his loves). But as a visiting professor he returned again to the Charles University in Prague in 1997.

Kamil Zvelebil began his study of Tamil as an autodidact around 1950. And already in the 1950s, thanks to him, Tamil and Dravidian studies became an integral part of the course offering, first at the Charles University in Prague, and later at various other renowned universities. In the late 1960s he visited for the first time the so-called Blue Mountains (*Nilgiri*) in southern India, where he described the languages and folklore of the inhabitants. It is difficult to evaluate his work, since his bibliography exceeds 500 titles. Among the most important his excellent description of the *Iruḷa* language (1971b, 1973c, 1979c, 1982e, 1988f, 1992f) should be included, and in wider sense his studies devoted to the *Nilgiri* language area (1980c, 1981b, 1985g, 1988d, 1990d, 2001). His Dravidian comparative phonology (1970b; cf. also 1965j, 1968b, 1972c) and morphology (1976-77g; cf. also 1972b), crowned by his excellent synthesis *Dravidian Linguistics - An Introduction* (1990b), have already become classics. Without any prejudice he seriously discussed the attempts to find the external relatives of Dravidian in Elamite (1974e, 1985k, 1990b) and Altaic (1990b, 1991b, 1991c). His comments about the Indus script remain valuable to this day (1965g, 1967i, 1973i, 1976-77c, 1983c, 1985c, 1990b). He was also an excellent specialist in Dravidian mythology (1982c, 1990f). His numerous translations, especially from Tamil or Old Tamil, illustrate his enormous diligence. But the sphere of his interests was wider, and in the last decades he was seriously interested in Zen Buddhism (cf. 2000, 2003b, 2005). He was also the author of a historical novel *Hippalos*, about a navigator of Alexander the Great who first crossed the Indian Ocean directly from the Red Sea to South India.

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Abbreviations: ArO Archiv orientální; BSOAS Bulletin of the School of Oriental and African Studies; IIJ Indo-Iranian Journal; IJDL International Journal of Dravidian Linguistics; JAOS Journal of American Oriental Society; JRAS Journal of Royal Asiatic Society; JTS Journal of Tamil Studies; NO Nový orient; NOB New Orient Bimonthly, PICL Pondicherry Institute of Linguistics and Culture, TC Tamil Culture.

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Tributes to Geoffrey O'Grady 1928-2008

Geoffrey O'Grady: A Pioneer in Australian Linguistics

Susan Fitzgerald
Vancouver, British Columbia

Geoff O'Grady's path to linguistics and academia was not a typical one. Although he was passionately interested in languages even in high school, he did not discover linguistic fieldwork through a university program. Rather, the lure of independence and the unusual led O'Grady, at age 21, to answer a newspaper ad calling for a *jackaroo* to work on a sheep station in north Western Australia, within Nyangumarta tribal territory. He told me, many years later, that he was surprised that he was hired, as at that time he worked in banking and had never once sat on a horse.

O'Grady was at this time untrained in linguistics, but he was a natural linguist. Over the next six years, he conducted field work on Nyangumarta as he worked and camped out with its indigenous speakers. He took his notebook everywhere. Riding across the vast desert land, he would ask his Aboriginal mates to stop so he could write down a particularly interesting grammatical structure that someone had just used. His early field notes contain gems of unsolicited sentences that refer to events such as O'Grady falling off his horse, climbing to repair a windmill, and forgetting his lunch.
The sense of adventure, open nature, and willingness to take risks that are evident in his early field notes also permeate O'Grady's career in linguistics. When he sent some of his work to Arthur Capell at the University of Sydney, Capell was so impressed that in 1956 he invited O'Grady to pursue a bachelor's degree. In his thesis (O'Grady 1959) he "was the first to look seriously at the relation between cultural diffusion and linguistic diffusion in Australia" (Wilkins 1997:413). In later years he developed a writing system for Nyangumarta that is still in use today. He undertook various field trips with his friend Ken Hale that "established the basis for modern linguistic classification in Australia" (Austin 1997:21).

During his career, O'Grady studied North American indigenous languages as well as Australian ones and addressed issues in phonology, language education, and historical linguistics. But the great Pama-Nyungan family of Australia remained his great passion. O'Grady believed that linguistic reconstruction should be approached both from the bottom up, by comparing closely related languages, and from the top down, by making larger-scale comparisons of geographically widespread languages in order to gain broader evidence of family history. Much – although certainly not all – of his research on the history of Pama-Nyungan took the top-down approach.

McConvell (997:322) described O'Grady's "work in Australian historical linguistics [as] refreshingly, intriguingly, and sometimes exasperatingly bold in the steps it takes, particularly semantic shifts in the meaning of roots." However, O'Grady welcomed debate and was fully aware that later work would lead to improvements in theories and knowledge, as it does in any field. In addition, his work spurred others to

look more closely at some of the issues it brought up. As McConvell (1997:322) went on to say,

> [P]rogress depends on scholars, if not exactly 'throwing caution to the winds,' sometimes at least conveniently setting aside caution for a later date, and producing hypotheses both challenging and likely to be challenged. O'Grady has been a master of this approach, and it is in the fascination engendered by his ideas that important currents in contemporary Australian historical linguistics and linguistic prehistory have had their beginnings.

O'Grady continued to work on Pama-Nyungan reconstruction until shortly before his death. Over the decades, he proposed an enormous number of putative etymologies at various levels in the Pama-Nyungan family. According to Crowley (1997:278), "O'Grady's painstaking compilation of possible cognates is the only way for us to achieve any degree of reconstructive reliability in Pama-Nyungan (and in Australian languages in general)."

The Australian Institute of Aboriginal and Torres Strait Islander Studies holds an invaluable collection of over a hundred of O'Grady's recordings and publications. His role in the field of Australian Aboriginal linguistics was acknowledged in 1997, when he was presented with a ***Festschrift,*** *Boundary Rider: Essays in Honour of Geoffrey O'Grady,* published by *Pacific Linguistics.* Throughout this book, he is described as a pioneer and his work is referred to as seminal. This is high praise! But I think what would be even more important to him are the recurring themes that come up in the more personal comments, both in his festschrift and in various sources that have appeared since his death. Colleagues, neighbours, friends, and former students write about his humbleness, generosity, kindness, loyalty and sense of humour, his talent as a storyteller, his ability to inspire his students, and his passion for languages and their speakers. Those who knew him personally will remember him as much for these traits as for the body of work he has left behind.

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Geoffrey Noel O'Grady. Jan. 1, 1928 – Dec. 28, 2008. A Tribute

Harold C. Fleming
Gloucester, Massachusetts

My friend, our friend, and their friend. They are the native Australians, also called the Aborigines. Some people disapprove of that word, perhaps because it has become "politically incorrect" – at least to some. My preference is to use that marvelous word (in French) *les Autochthones*, those who sprang from the earth. That is about as native as you can get. We have the same problem in the Americas, with 'native American' being the current term of choice – apparently. But the real problem does not lie in the exact choice of name; it lies in the attitude of the person uttering the word. You can take a good normal term, like 'Yankee', and say it with a sneer or evident dislike and – presto! – you have a word which the judges of political correctness will say has to be avoided in polite society. So as not to hurt somebody's feelings. American southerners and those *Ausländers* who shout "Yankee, go home!" mean Yankee as an expression of dislike. Take away the term Yankee and they will think of something else to call the object of their dislike.

The native Australians, so far as I can tell, loved Geoff O'Grady and he certainly loved them. This is something you don't often hear reported in the social sciences. A person studies some others and reports back to her own people about these others. At no point does she have to comment about her feelings. "Did you like them critters?". "I was just doing my job and my feelings are irrelevant!" But I would imagine that Geoff would say that he loved his Nyangumarta and others and he did not care at all if someone thought that interfered with his work.

There is one thing that arm chair types, theoreticians, methodologists, and perhaps even librarians, do not understand about field work or field workers. Field work can be exciting; it can be socially rewarding; it can be fun! And there is every reason to believe that the gathering of data and the analysis of it/them is facilitated by the field worker's rapport with the natives, sorry, informants! I remember once reading a Christian missionary's hand book on how to learn a 'native' language. One passage I remember well. The approximate quote was: "Learning a native language is made much easier by intercourse with the natives." Can't you imagine Geoff and his aborigines chuckling at that astute observation?

Geoff O'Grady was a field worker *par excellence*. He gathered data on a large number of Pama-Nyungan languages, and their local varieties, over a large area. After all Australia is three times the size of the Sudan or the Congo. He also encouraged and helped others to do field work. Although I was not present there, I would bet that he induced a wonderful 'esprit de travail' in his colleagues. Not just to record data but also to work with it/them analytically and taxonomically. There have, of course, been linguistic field workers who just gathered data willy-nilly without thinking about it too much. Just as there have been many theoreticians and analysts who never or hardly ever went into the field. Two of my own mentors in anthropology and linguistics barely did any field work. Another two were indefatigable field workers.

What is very unusual, very special, about Geoff O'Grady was that he stressed both types of work. Yes, he gathered much data. Yes, he stressed reconstruction of proto-languages and worked on them, And yes, he contributed significantly to taxonomy. One cannot imagine Geoff ever claiming that he did most of the work; he could be very modest in his gentle friendly way. But either working by himself or with his colleagues he contributed a great deal to historical linguistics and to long range comparison.

He was also characterized by an attitude most wholesome for prehistorians. As quoted by Susan Fitzgerald above it was summed up as follows:

> [P]rogress depends on scholars, if not exactly 'throwing caution to the winds,' sometimes at least conveniently setting aside caution for a later date, and producing hypotheses both challenging and likely to be challenged.

I cannot think of any better way of summing up the psychic framework for long range comparative work.

Most of us can measure the depth of Geoff's contribution ourselves by going back to MT-IX (MT-9), pages 3-132, to see both the quality and the extent of his work. Two more things are to be stressed. In Pama-Nyungan we are dealing with 250 languages, more or less, which represents at least a majority of Australian languages but also only about 1/30 or one out of thirty of the sub-phyla or major branches of the whole Australian phylum. With all the other branches 'crowded together' in the northwest of the continent in an area larger than Nigeria, Pama-Nyungan is strongly reminiscent of Bantu, spread over a vast area. As there are among the primary branches of Niger-Congo to which Bantu belongs as a twig –there are deep differences among the sub-phyla of Australian too. Scholars are slow and cautious about relating Australian to any outside phylum, just as they are with Niger-Congo. Such caution is only sensible. All the signs of substantial time depth are present in both cases.

Pama-Nyungan is however deeper or older than Bantu – in all probability. Whatever glottochronological calculations have been made on Bantu, most of which I have forgotten, Bantu's separation from its kin in Nigeria is probably not older than 2000 BC, or 4000 years ago, because Bantu is tied to the arrival of the Iron Age in Africa and to the diffusion of crops from Southeast Asia via the Indian Ocean trade. Or at least Bantu's expansion into sub-Equatorial Africa is so tied. Pama-Nyungan on the other hand is not tied to archeological dates so we are left with glottochronological calculations. Here Geoff is there to help us. In an earlier issue of our Newsletter, he arrived at the figure of 6% between the extremes of Pama-Nyungan, while in MT-9 he favored around 9%. Geoff thought that Pama-Nyungan was probably 4000 years old; these were not glottochronological estimates. As we demurred from his dates (on page 1 of MT-9), we calculated that 6% to 9% more or less suggested a date like 9500 BP or more recent.

What this all suggests is that Geoff with his colleagues was dealing with a language family with diversity and time depth greater than Indo-European or even Austronesian, yet one which was only a small part of Australia's taxonomic array. Pama-Nyungan does not have the time depth of any of the major African phyla but the Australian phylum itself surely does –if it is not actually older than any one phylum in Africa!

If Geoff had done all this work on some famous groups like Indo-European or Semitic or Altaic, he would be getting job offers from Harvard, Yale, and MIT. Just because the academic linguistic world has not gotten its priorities figured out does not mean that we cannot tell important work from 'run of the mill' labors.

Our friend, my friend, and their friend was a damned good scholar! We salute you, Geoff O'Grady! And may your wife and children be proud of you!

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Hot Bio-Genetics in 2009

Harold C. Fleming
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During the 20th century three virtual revolutions occurred in the approaches of physical anthropologists and others to the study of human taxonomy and evolution. These changes in sum are : the switch to **genetics** over anthropometry, the rejection of race as a taxonomic concept, and the near total dominance of **molecular** genetics in human taxonomy and evolution. There has been a survival of **phenotypic** measurements only in what is now called "paleoanthropology," the classification of and evaluation of fossils from before the advent of ***Homo sapiens*** and during our later evolution into so-called "anatomically modern humans." Until quite recently, geneticists had one option – to study recent humans. To coin a phrase – they couldn't get blood out of stones or bones.

The great changes in approach did not necessarily mean that the results of the older methods were always wrong. Some weak taxa, such as the 'races' of Europe, were swept away. Yet not all phenotypic traits were useless; some still could be used to form testable hypotheses which could be checked against genetic evidence. The great saliency of such large populations as Native Americans, sub-Saharan Africans, Pigmies, etc. has survived the three revolutions, even though based on phenotypic information.

Herein we examine what molecular genetics has to say on the saliency and deeper relationships of three of these populations. We will also confront the creeping willingness of some geneticists to write prehistory in their own terms while neglecting or disregarding other lines of evidence. There will be some evidence brought to bear on my skepticism about bio-genetic dating or the magic of the '*molecular clock*'.

We begin with the Native Americans and discover quickly that this socio-political concept breaks down immediately into three distinct groups, Eskimo-Aleuts, Na-Denes. and what most Americans call the American Indians or Amerinds. Not only are the three groups the same as the three groups postulated by Greenberg, Turner, and Zegura in 1985, but our geneticists stipulate them as separate. They accept the Amerinds as a distinct taxon but also state that most human geneticists accept or work with the Greenberg's Amerind. Despite these kind words, their general thrust in the article appears to be to sever that taxon and/or cast doubt on the validity of the Amerind hypothesis.

Our source is an article in *Current Biology*, 2009, by Ugo A. Perego, et al. (fifteen colleagues) entitled "Distinctive Paleo-Indian Migrations Routes from Beringia Marked by Two Rare mtDNA Haplogroups." (Full citation in the References.) This is a very formidable paper, well-researched and presented, well-supported with a solid evidentiary base, and carefully argued conclusions. It is a fine piece of work and a tribute to the strength of molecular genetics, especially human genetics, in Italy. Our old fellow ASLIPer, Antonio Torroni, is the man to correspond with and I suspect that he had a great deal to do with the organization of the paper.

Perego and colleagues base their analysis on mtDNA data, including 276 "entire mtDNA sequences" and especially the distinctive D4H3a and X2a haplogroups. Rather than listing data by tribe or language group, they stipulate the locations of donors by

country or dots on the map for large countries like Canada, the USA or Brazil. While this is mildly irritating to an anthropologist, it is understandable given the considerable research done in the past. (In our Newsletter years before our journal was born we reported often on this research.) Right away one could criticise Perego's team for not incorporating Y-Chromosome DNA data and analyses because the two are sometimes contrastive in migration discussions. However that criticism has to be toned down because the Amerind migrations did not involve – presumably – intermarriage with the previous inhabitants. The Americas had no resident humans to swap genes with – at least during the initial settlement periods, unlike the case for the Eskimos and NaDene who would have Amerinds to deal with. The great contrastive situation was found in a city in Columbia where the mtDNA was overwhelmingly Amerind, while the Y-Chromosome data were overwhelmingly European. Spanish conquistadors and Amerind women. Again presumably Australia would be the only other continental area with similar conditions.

Nevertheless, we cannot deny the logic of the above criticism. As Pardner Hicks has argued many times in the past, we cannot assume that the Amerinds were the first humans to settle in the New World. As a matter of fact the late Morris Swadesh in his South American taxonomies used to postulate "lost languages" in the southern part of that continent.[1] Again one consequence of the vociferous opposition to Greenberg's Amerind hypothesis is that some of the languages spoken by Native Americans may not be related to the others. Since these orphaned languages will then be isolates, we have no clue to their bio-genetic affiliations either. So, yes, it would have been better to obtain Y-Chromosome data too.

Analysis of the data revealed a duality which required some explanation. One haplogroup (D4H3a) seemed to prefer the Pacific side of the continents, while the other (X2a) concentrated itself in what Americans call the 'heartland', the great plains of Canada and the USA. The X2a pattern was strikingly similar to the same region when ABO blood groups were examined and correlated with the supposedly very tall Plains Indians or the stereotypical 'noble' Indians shown on coins or stamps.. With a buffalo diet they were nutritionally like the pastoral Aryans of Russia or the Nilotes of the Sudan.

Surely such a bi-modal distribution demanded an explanation. One could easily propose that there were 'factors' such as climate or closeness to glaciation or diet which could account for the duality. But of necessity they oriented themselves to history and especially to migrations; the data could hardly be understood without an evolutionary or developmental or historical perspective.

Their decision was to propose that the D4H3a represented a migration down the Pacific coast of the "double continent" or North and South America. A migration which began in Beringia, probably Alaska itself, which ran all the way to Tierra del Fuego while also penetrating inland or eastward. Their second decision was to propose that the X2a group had come down from Beringia by means of a corridor between two great glacial systems, running from, say, the Yukon down to, say, Iowa.

[1] Swadesh also did so in Australia. It could be argued that Tasmanian represents such a lost tongue.

When the dates for the migrations were calculated, both groups were approximate contemporaries of around 15 kya to 17 kya.[2] In a critical sense the team concluded that the two migrations were **parallel** migrations. Yet, because both were from Beringia and there were hundreds of years between them, their relationship could have been **sequential**. One went south first by one route, while later on the second went south by a different route. Moreover there is no particular reason for them not occupying most of Beringia and becoming accustomed to different "nesting areas." For example the D4H3a group could have become hunter-fisher type people, like the later maritime Na-Dene adapted to the sea and the heavy forests on the Pacific side of the Rocky Mountains. After all Beringia is one of the great fishing areas of the world.

The X2a folk could have remained cold-adapted hunters on Chukotka and Kamchatka, living near the glaciers, crossing to central Alaska and opportunistically following an opening between glacial regions. Moreover there is no reason in principle to assume that the two populations spoke the same language or were even genetically related to each other linguistically.

Without disrespecting either their molecular data or molecular analyses, we may nevertheless examine the inferences they make about prehistory. Nothing in the molecular data, for example, demands that the two haplogroups migrated along the paths which Perego et al. say they followed. The data do, however, seem to demand that ultimately both haplogroups derive from Eurasia, with Beringia being an obvious staging area along the way. Why is that? In the grand taxonomy of this study all of the Amerind groups constitute one half of a sub-clade. One sample from eastern China constitutes the other. At a higher level the China-Amerind clade is a sub-clade in a larger clade of which an "African" group constitutes the other. We can diagram this succinctly, as follows:

A -→ African + B-C B-C -→ China + C C → D4H3a + X2a

Perego et al. present this much more beautifully in their Figure 1 on page 3 .But the logic is the same.[3]

It seems that Perego et al. took their migration routes from the general literature and not from the molecular analyses. Hypotheses involving Pacific coastal routes or glacial corridors have been frequent in the past decade or so. Surely these two are among the three most likely general scenarios for the peopling of the New World. The third one which many of us preferred was a general migration from Beringia south during an ice-free period. Scooting south during a warmer period but between two glacial systems seems to demand a cold-adapted population of early Amerinds.

Moreover there is something seriously wrong with their conclusion from a linguistic standpoint, a viewpoint which they aimed at but otherwise neglected completely. Ask this question: how do the two haplogroups relate to the sub-groups of Amerind? If the two migrations were made during the same time period, should they not represent different moieties or comparable sub-groups of Amerind? Should the two

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[2] Prehistorical dates are intensely controversial in Amerind matters. I believe that their dates are mistaken but I cannot prove it. Several archeological dates suggest that Perego's dates are much too young.

[3] It is very tempting to see this diagram as a master model for Borean which has its roots in Africa and its finis in Tierra del Fuego. I am still tracking down the source given for the African group, supposedly "Levantine." This needs to be resolved!

groups not have roughly similar 'taxonomic weight'?[4] I doubt that either the Greenberg supporters or their Americanist critics would locate a homeland or center of diversity in the American or Canadian mid-west, the so-called heartland of the USA.

To make this point briefly, consider that of Greenberg's 6 major sub-taxa of Amerind (Northern Amerind, Central Amerind, Chibchan-Paezan, Andean, Equatorial-Tucanoan, and Ge-Pano-Carib) the first four are clearly heavier on the Pacific side, while the last two in South America are so scattered as to be nearly unreadable.

Great injustice has been done to linguistic reasoning because the bulk of the diversity of Amerind is on the Pacific side and thus, we can presume, probably much older. Truly Perego et al.'s Pacific haplogroup fits quite nicely into the general sub-group pattern of Amerind, the language super-family. The other haplogroup X2a doesn't fit much of anything – yet. It is quite anomalous! If the import of the Pacific weight is to suggest that Amerind migrated south from Beringia, the midwestern group can easily be derived from it. Would it not be easier for this group to have a "nesting area" in, say, Idaho whence they moved east into the plains than to move down from the Yukon? **Ergo we do not need a corridor between glacial systems.** And oddly enough the distributional pattern of such a major clade as Almosan-Keresiouan, or Almosan and Keresiouan as separate clades, invites comparison to haplogroup X2a. They go coast to coast but from their likely base in the west which they left at an early date.

Ugo Perego et al.'s conclusion is that: "Consequently from a standard linguistic point of view Greenberg's Amerind hypothesis might be regarded as a claim that can neither be validated nor dismissed [45]." The [45] note is to a paper by Terence Kaufman and Viktor Golla, long term critics of Greenberg, which appeared in a book edited by Colin Renfrew. Now in the normal logic of science to say that an hypothesis cannot be validated nor dismissed is to say that it is untestable and therefore probably worthless. What a **strange thing to say** about a major taxonomic hypothesis! But now the truth value of the Perego team's conclusions needs thoughtful re-appraisal! Not to mention their motives.

Did the famous wee people of the Congo, a.k.a. the Pigmies, develop out of ordinary Africans in the forest or in some other place before they entered the forest? Did their evolution into a distinct group of humans occur long ago or was it due to mutations in a few genes, e.g., growth hormones, which took place fairly recently? Since many of the Bantu peoples of Africa had ancestors who passed through the rain forest on their ways elsewhere, were they thoroughly mixed with Pigmies or fairly untouched? Or were the Bantu already in the forest when the Pigmies arrived from elsewhere?

These questions which vary in importance are perennial, although not frequently asked. The old belief that archeology would not be productive in the rain forest – a belief that Julio Mercader helped to refute recently (MT-10, 2006, p.59-74) – has been discarded. We now have archeological sites of considerable antiquity (Ituri Forest, 20kya). Yet there is no *talisman* to indicate which site is a Pigmy site and which is not. Nor any linguistic clues either, as yet. So this problem is meant for molecular genetics!

[4] For example, in Indo-European classification tiny Albanian and little Armenian have at least the same 'weight' as far-flung Germanic and Indo-Aryan. Each is a sub-clade or branch of the whole family.

Fortunately, one very recent study have shed much light on these problems. It is by Verdu, et al. (thirteen colleagues) and appeared in *Current Biology* in February this year, establishing some Bantu-Pigmy gene flow indications and interesting dates. This is a very straight-forward paper whose contributions can be summed up quite compactly, as follows:

First, gene flow has not been uniform and uni-directional. The basic rule is that male Bantus may take Pigmy wives but female Bantu take no Pigmy husbands. Thus Y-Chromosome flow is from Bantu to Pigmy women who are frequently incorporated into Bantu society and who cannot pass it into Pigmy society. Pigmy Y-Chromosomes do not flow to Bantus. Mitochondrial DNA or mtDNA may flow from Pigmies to Bantu. although not in large amounts, but there is no flow, or little flow, from Bantu society to Pigmy society. It is, of course, most likely that an occasional individual will break these rules. A Bantu woman might 'run away and join the Pigmies', thus bringing some mtDNA to them. A Pigmy man might be accepted into Bantu society and take a Bantu wife, thus bringing his Y-Chromosome contribution to them.

Second, these marriage rules are strikingly similar to those found among the Tuareg and the Ongota – and elsewhere in Africa sometimes. In Tuareg society with matrilineal descent – and a caste system to protect – the effect is to keep the *Untermensch* down. In Ongota society, such as there is, they are on the bottom and the neighboring Tsamai block Ongota male genes, while providing the Ongota with Tsamai wives. Eventually the Ongota will become a clan or lineage in Tsamai society.

Third, for these reasons which have probably been in effect for millennia, the two populations are genetically distinct. Moreover it is possible to measure or estimate degrees of separateness in time. Calculating separation from "28 autosomal tetranucleotide microsatellite loci" on 604 individuals, they arrived at dates for the splitting up of the original Pigmy hunter-gatherer population, due to the arrival of the Bantu farmers entering the forest, and dates for the original split between the Pigmies and Bantu or their ilk.[5]

Four, the western Pigmies (Baka, et al.) parted company with the eastern (Mbuti) about 2800 BP. This falls within their dates for the Bantu intrusion (2000-5000 BP).

Five, Pigmies as a whole parted company with the Bantu and their ancestors between **54,000 and 90,000 years BP**, depending in part on whether the BaBongo group of Pigmies were included or excluded. The Bongo are a special problem because of gene flow. Since this is autosomal DNA, the male and female contributions are unclear.

If the above dates turn out to be true, they have powerful implications for the early dispersals of *Homo sapiens,* not only in Africa but world wide. Unless the ancestral Pigmies were speechless, this argues against such dates for human dispersals as 50,000 or 72,000. But of course this is a molecular genetic date and therefore, sadly, less to be trusted than archeological dates. We need confirmations! Some unpublished studies come close to doing that. So Verdu's best date – 90,000 – is partially confirmed.[6]

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[5] A small point but at the dates calculated there would have been no Bantu to speak of, anymore than there would have been Norwegians in 3500 BC.

[6] Another unpublished study finds that Afroasiatic speakers are distinctly and pervasively separated from all other groups in Africa, although different Afroasiatic groups get quite far from each other. It is also mildly irritating that we are not told which populations they are. I am guessing either Chadic or Omotic.

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[7] An expanded version of this article was published in 1986 as: "The Settlement of the Americas: a Comparison of the Linguistic, Dental, and Genetic Evidence." *Current Anthropology* 27: 477-497. [Ed.]

MOTHER TONGUE
Journal of the Association for the Study of Language in Prehistory • Issue XIII • 2008
Twenty Years of Language in Prehistory • Ann Arbor Symposium • November 1988

News from Russia

John D. Bengtson

More than two decades after Hal Fleming's 1986 visit to Russia and discussions with the "Moscow School" of comparative-historical linguistics that led to the founding of *Mother Tongue* and later ASLIP, we are pleased to note that the Moscow School is still going strong – perhaps stronger than ever.

In March 2008 I attended the conference "Problems in the Study of Remote Relationships of Languages (on the 55th Birthday of S.A. Starostin),"[1] at the Russian State University for the Humanities. It was a pleasure to again meet the venerable Vladimir Dybo, the close associate of Vladislav Illich-Svitych and now a patriarch of the Moscow School, along with some others I had last seen at the Ann Arbor Symposium in 1988 (Anna V. Dybo, Oleg Mudrak, Sergei L. Nikolayev), and the up-and-coming younger members such as Kirill Babaev, Sergei Jatsemirskij, Nikita Krougly-Enke, Julija Normanskaja, et al. My Santa Fe colleagues Georgiy Starostin and Ilia Peiros were there, and our Leader, Murray Gell-Mann, made a brief appearance. It was also good to be with my friend Václav Blažek once again.

It was personally gratifying to see firsthand how the "Moscow School" operates. Obviously, not every linguist in Moscow is interested in Nostratic and other long-range comparison (LRC), but the number of those who are seems to be greater than in any other settled area on earth. In America, for example, the few "long rangers" are scattered all around the country and do not get to meet and discuss with each other very often. I was especially struck by the vigorous discussion that took place after Sergei Nikolayev spoke. Since I know so little Russian I could not understand much of what they said, but it was still clear to me that the Muscovites are not afraid to discuss issues seriously and still remain cordial. Another difference seems to be that in Moscow the necessity and importance of LRC is accepted (even if not actively pursued by everyone), while in America and England LRC comparison is generally looked upon as an embarrassing, "fringe" preoccupation that is studiously avoided by any scholar who wants to be taken seriously by the "mainstream." Kirill and Georgiy had these observations on my impressions:

> "Actually I enjoyed the conference very much. I think we've had a very open discussion and some quite interesting reports. The Moscow School is traditionally very open to free discussions on the issues. It is probably the heritage of the Soviet tradition stating that everyone is equal, a professor and a student. This encourages everyone both to openly express their opinions and to openly criticize anyone's else.
>
> This kind of atmosphere, to my mind, is ideal for LRC studies. Many opinions expressed there are still quite controversial and the only thing which can purify them and prove a hypothesis is a brainstorming discussion. You are right saying that Americans usually tend to avoid this, unfortunately. But to prove something right or wrong one

[1] Проблемы изучения дальнего родства языков (к 55-летию С. А. Старостина).

should discuss it first. This is what we do every Thursday in RSUH, starting 6pm. This helps a lot." (Kirill Babaev)

"I think another important point is that, contrary to some uninformed opinions, much, if not most, of the work of the Moscow school is really in the "short-range" department, as you could see yourself. The big difference is that many of the "short-rangers" are not afraid to view their own research in a bigger perspective, and not embarrassed to compare their conclusions with the overall scheme of things as it stands on the Nostratic, or Sino-Caucasian level, instead of stubbornly locking themselves within their own little sub-system." (Georgiy Starostin)

* * * * * * *

Nostratica Website

A new website, *Nostratica: Resources on distant language relationship*, was founded in 2008. Its E-Library offers a large number of online articles featuring not only the stalwarts of the Moscow School of Nostratic, but also long-rangers from around the world, as well as some prominent critics:

Aharon Dolgopolsky's *Nostratic Dictionary* Online: *Nostratica* has uploaded the first ever *Nostratic Dictionary*, written by Aharon Dolgopolsky.

Allan Bomhard vs. Dolgopolsky's Dictionary: Allan Bomhard, the leading American nostratist, has kindly sent us for publication his critical review on Aharon Dolgopolsky's *Nostratic Dictionary,* which was published online a few months ago.

Altaic: We present in our E-Library the works by most prominent linguists on the issues of relationship between Japanese, Korean and the rest of the Altaic family of languages.

Dene-Caucasian: We are putting online articles devoted to Dene-Caucasian comparative analysis published in the past fifteen years.

Austric: Most famous works on the three major language families of South-Eastern Asia (Austronesian, Austro-Asiatic and Thai-Kadai) are now placed in a special section of our E-Library.

Niger-Congo: In our E-Library, we present the best-known articles on Niger-Congo linguistics written to date by the most prominent African scholars including J. Greenberg, K. Williamson, J. Stewart, D. Nurse, and others.

Nilo-Saharan: We publish materials devoted to Nilo-Saharan comparative linguistics. There is not much one can find on this interesting topic, but the more valuable are those articles and books we have obtained so far.

Global Comparison: We have added a new section to the E-Library containing recent publications on global etymologies and the origins of human language.

From *Mother Tongue*: We present some interesting materials on global etymologies and Austric languages from *Mother Tongue*, a journal on macro-comparative linguistics, kindly offered by their respectable authors.

Critics: We offer to our readers the works of the most prominent critics of long-range comparative linguistics, including Alexander Vovin, Sir Gerard Clauson, Lyle

Campbell, Johanna Nichols, et al. We invite our respectable readers to make their own judgments after considering the weight of both positions accessible from our electronic library.

Lyle Campbell's "Distant Genetic Relationship: the Methods": The article by Lyle Campbell, one of the most consistent critics of the long distance relationship in linguistics.

The website is moderated by **Kirill Babaev** in Moscow. You are encouraged to address your questions and remarks to mail@nostratic.ru.

* * * * * * *

A new "sister-journal" for *Mother Tongue*: The *Journal of Language Relationship / Вопросы языкового родства*

"It is with great pleasure that we are able to inform you of the collective decision of the Center of Comparative Linguistics at the Russian State University for the Humanities and the Institute of Linguistics of the Russian Academy of Sciences to introduce a brand new peer-reviewed journal dedicated to various issues of comparative and historical linguistics, under the title *Journal of Language Relationship / Вопросы языкового родства.*

As the title implies, the *Journal* will primarily focus on issues of genetic relationship between the world's languages, including issues of methodology, distinguishing true relationship from contacts, short-range versus long-range comparison, actual problems of linguistic taxonomy, and, of course, practical work on comparative studies in different linguistic areas of the world.

We are quite strongly convinced that such a new forum will not be superfluous, as periodical editions dedicated to comparative-historical linguistics as a whole are relatively few, and that it will stimulate additional interest in the field, as well as provide the scientific community with a viable means of promoting dialogue and, hopefully, cooperation between specialists occupying different theoretical platforms.

In its currently envisaged form, the *Journal* will appear twice a year, with an articles section consisting of 5 to 10 papers, depending on their length and relative importance, a reviews section and a general information section highlighting important events in comparative linguistics, such as reports from conferences or working groups.

The *Journal* will be published in Moscow through RSUH (Russian State University for the Humanities) Publishers and have a wide distribution network in major Western universities and libraries, as well as individual subscription possibilities. An abridged electronic edition will also be accessible at the official site for the *Journal* (http://journal.nostratic.ru), which we welcome you to visit. At the moment, we do not plan any special thematic issues, however, such a possibility is not excluded for the future, if brought up by members of the Editorial Board.

The main working languages of the *Journal* will be English and Russian, with English articles accompanied by short resumes in Russian and vice versa. However, articles in other major European languages will also be considered, if submitted.

It is our earnest intention to make the *Journal* into an international platform for exchange of ideas. With this aim in mind, we offer you to consider submitting some of the results of your research in the form of finished articles or reviews for publication in the *Journal,* provided they fit its general scope and purposes. We also encourage you to circulate this letter among all of your colleagues whose research interests include comparative linguistics, since, for obvious reasons, we are unable to send personal invitations to all of them.

If you have any questions, suggestions, or valuable remarks to be taken into consideration by the editors, please contact us at journal@nostratic.ru. This is also the address at which we accept potential contributions in article form.

We hope that, with your aid, we can quickly make the *Journal* into a valuable resource of ideas and discoveries, and improve general conditions for advancing our science."

Sincerely yours,

Chairman of the Editorial Board	Prof. Dr. **Vyacheslav Ivanov** (University of California, Moscow State University)
Chief Editor	Prof. Dr. **Vladimir Dybo** (Russian State University for the Humanities)
Associate Editors	Dr. **Kirill Babaev** Prof. Dr. **Anna Dybo** Prof. Dr. **Oleg Mudrak** Dr. **George Starostin** Prof. Dr. **Tatyana Mikhailova**

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International Conference "Problems of Language Relationship" (2009)

The Annual Conference devoted to Sergei A. Starostin was held at the Russian University for the Humanities in Moscow on 27-28 March, 2009.

To access some of the handouts from the Conference see:

http://www.nostratic.ru/news/(53)chteniya.pdf

20 YEARS of Language in Prehistory
1988-2008

November 2008 marked the 20th anniversary of the **First International Interdisciplinary Symposium on Language and Prehistory**. Organized by Vitaly Shevoroshkin and Benjamin Stolz of the Department of Slavic Languages and Literatures, University of Michigan, the Symposium was held on the Ann Arbor campus on November 8-12, 1988.

This Symposium was the first to bring a wide variety of historical linguists and physical and cultural anthropologists together to discuss language in prehistory, including deep classifications (macrofamilies) and language origins, together with evidence from other anthropological fields. About one third of the scholars came from the USSR and other Eastern Bloc countries (particularly of the "Moscow School" founded by Illič-Svityč and Dolgopolsky). The Symposium initiated and strengthened relationships among paleolinguists and other anthropologists that have led to major discussions, publications, and other collaborations on language and prehistory. A salient example is EHL (Evolution of Human Language Project, sponsored by Murray Gell-Mann and the Santa Fe Institute) since 2001.

The membership of Harold Fleming's "Long Range Comparison Club" (begun in 1986) coincided generally with the list of people attending the Symposium. The "Club" was legally incorporated in 1989 as ASLIP (Association for the Study of Language in Prehistory), and it has benefited immensely from the aftereffects of the Symposium.

Forty-six scholars participated in the Symposium, as presenters or discussants. Of these, we are sorry to say, the following are known to be no longer living (in order of birth):

Karl-Heinrich Menges (1908-1999)
Eric de Grolier (1911-1998)
Paul K. Benedict (1912-1997)
Joseph H.Greenberg (1915-2001)
Ernst Pulgram (1915-2005)
Edgar Polomé (1920-2000)
Mary Ritchie Key (1924-2003)
Roger W. Wescott (1925-2000)
Henrik Birnbaum (1925-2002)
Marvin Lionel Bender (1934-2008)
Andrei Korolëv (1944-1999)
Eugen Helimski (1950-2007)
Vladimir Orel (1952-2007)
Sergei A. Starostin (1953-2005)

The surviving participants are: **William H. Baxter, A.L. Becker, John D. Bengtson, Václav Blažek, Allan R. Bomhard, J.C. Catford, Luigi Luca Cavalli-Sforza, William Croft, Madhav Deshpande, Gérard Diffloth, Aharon Dolgopolsky, Anna V. Dybo, Vladimir A. Dybo, Harold C. Fleming, Eric P. Hamp, Irén Hegedűs, Vyacheslav Ivanov, Mark Kaiser, Sydney Lamb, Alexis Manaster Ramer, Thomas Markey, Aleksandr Militarëv, Oleg Mudrak, Sergei L. Nikolayev, Ilia Peiros, Geoffrey Pope, Merritt Ruhlen, Viktor Shnirelman, Vitaly Shevoroshkin, Stephen Tyler, Calvert Watkins,** and **Gernot Windfuhr.** All of these, insofar as we could locate them, were invited to participate in this Twentieth Anniversary Issue.

Symposium proceedings were published in five volumes in the series Bochum Publications in Evolutionary Cultural Semiotics by Universitätsverlag Dr. Norbert Brockmeyer, Bochum, Germany:

Reconstructing Languages and Cultures. Abstracts and Materials from the First Interdisciplinary Symposium on Language and Prehistory, Ann Arbor, 8-12 November, 1988. (Bochum Publications in Evolutionary Cultural Semiotics 20.) Ed. by Vitaly Shevoroshkin. 1989.

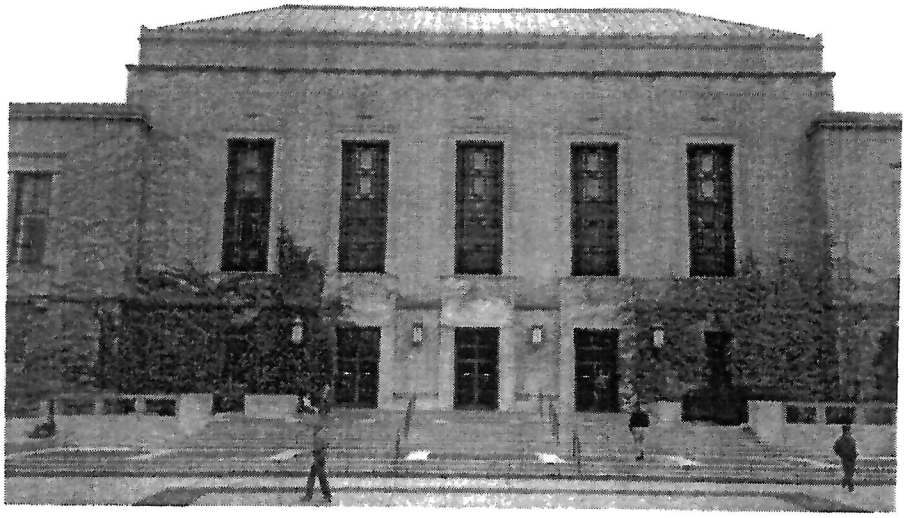
Explorations in Language Macrofamilies. Materials from the First Interdisciplinary Symposium on Language and Prehistory, Ann Arbor, 8-12 November, 1988. (Bochum Publications in Evolutionary Cultural Semiotics 23.) Ed. by Vitaly Shevoroshkin. 1989.

Proto-Languages and Proto-Cultures. Materials from the First Interdisciplinary Symposium on Language and Prehistory, Ann Arbor, 8-12 November, 1988. (Bochum Publications in Evolutionary Cultural Semiotics 25.) Ed. by Vitaly Shevoroshkin. 1990.

Dene-Sino-Caucasian Languages. Materials from the First Interdisciplinary Symposium on Language and Prehistory, Ann Arbor, 8-12 November, 1988. (Bochum Publications in Evolutionary Cultural Semiotics 32.) Ed. by Vitaly Shevoroshkin. 1991.

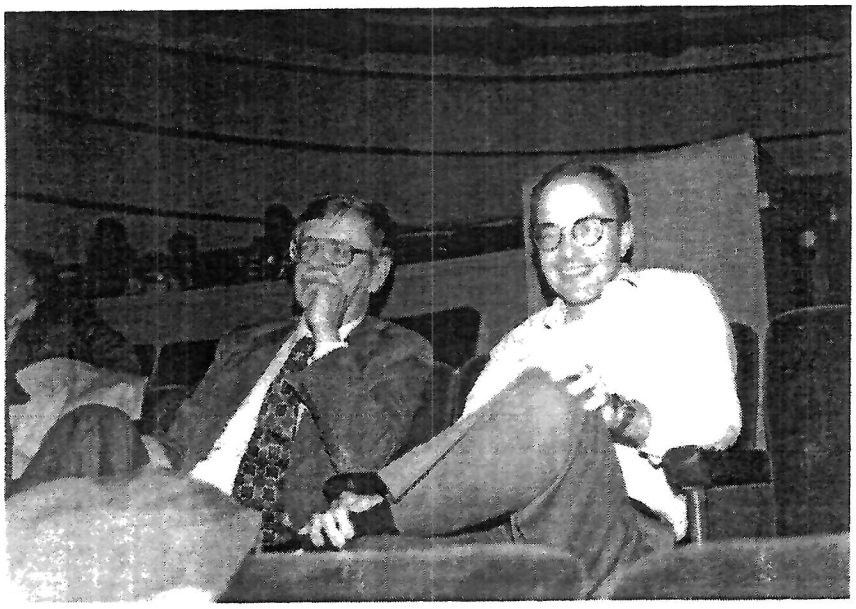
Nostratic, Dene-Caucasian, Austric and Amerind. Materials from the First Interdisciplinary Symposium on Language and Prehistory, Ann Arbor, 8-12 November, 1988. (Bochum Publications in Evolutionary Cultural Semiotics 33.) Ed. by Vitaly Shevoroshkin. 1992.

Photographs from the Symposium

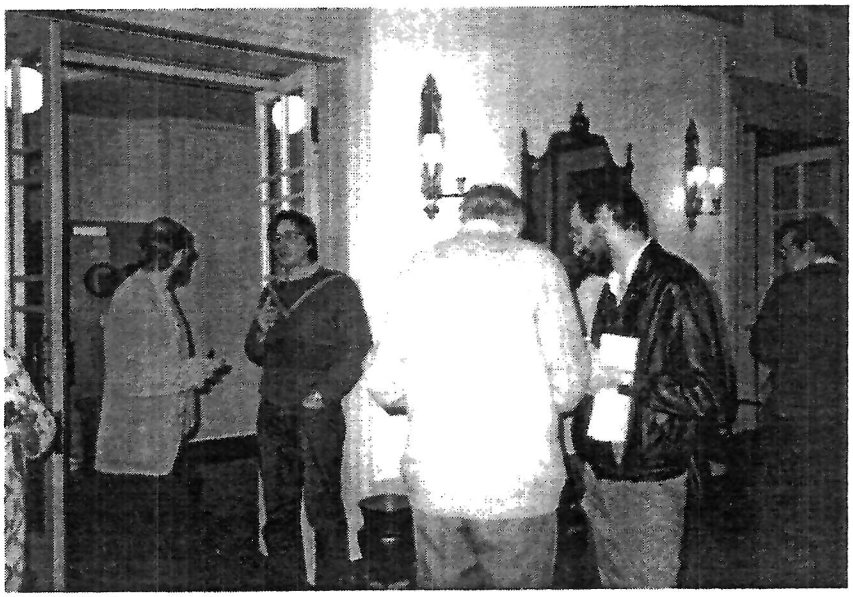


Rackham Amphitheater, Ann Arbor, Mich. · Site of Symposium Discussions

Karl-Heinrich Menges and Gernot Windfuhr



M. Lionel Bender and Allan R. Bomhard in the Rackham Amphitheater



Left to right: Václav Blažek, Sergei L. Nikolayev, Vitaly Shevoroshkin, Sergei A. Starostin

Photographs courtesy of Allan R. Bomhard.

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Roots of a Fallacy

Harold C. Fleming
Gloucester, Massachusetts

My favorite definition of a "fallacy" and one most pertinent to this discussion is that given by Webster's Deluxe Unabridged Dictionary of 1979, (as its 4th meaning): "In logic . an argument or proposition apparently sound though really fallacious; a fallacious statement or dogma in which the error is not obvious and which is therefore calculated to deceive or mislead." The central term "fallacious" means "faulty in logic; misleading, deceptive, illusive. sophistical." Although it is rare in scientific discourse because of the remedial properties of the collegium's discussions, *i.e.*, peer review, nevertheless from time to time fallacies occur and sometimes major ones distort theoretical perspectives of a discipline and lead the field into unfruitful pursuits; they may even be considered factual and so obvious as to be beyond correction or discussion.

In the sub-fields of prehistory, basically a part of anthropology, we have such a fallacy which came to full flower about twenty years ago and has reigned supreme ever since. It is the notion, fundamentally an heuristic proposition, that genetic linguistics and especially the revered Comparative Method cannot work on, cannot produce good results from, language relationships which are more than 6000 to 8000 years old. Presuming that this is empirically based, rather than a simple fallacy, we find very little evidence to support it, particularly since there are a number of linguistic phyla around the world which are patently older than 6000 to 8000 years.[1] Normally these data would be enough to dethrone a major proposition like the 6000 year rule. But the rule persists, albeit skillfully modified over time into a 8000 year rule. It may be then that the rule does not rest on empirical shoulders but has other supports. In logic or mathematics perhaps?

Searching into the history of the 6000 year rule led with surprising ease to a source which has been quoted directly or obliquely many times, but which no longer enters into discussions. When one considers the general hostility manifested by linguists to Swadesh's theory of glottochronology, remarkably enough the source turns out to be a fairly obscure article on some consequences of glottochronogy, written by Marvin L. Bender in 197-.[1] Bender, himself a trained mathematician and Africanist linguist, had worked approvingly with lexicostatistics[2] in Ethiopia. When Bender first produced the article, he sent it to me and Paul Black[3] for comment and criticism. We both responded with strong and negative criticism, urging him not to submit it for publication but rather to re-think the whole thing. He refused to do that and submitted it for publication; it was published and soon attracted much attention. Most recently, I asked him if he would retract the article in question and he again refused.[4]

What was the gist of the fallacy that Paul Black and I perceived in Bender's article? Bender had reminded everyone of a simple aspect of glottochronology, to wit, over time the

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[1] Search though I may, I cannot find the date of publication or the journal in which it appeared, although the source is firmly implanted in my grey matter. I have not been able to contact Paul Black in Darwin, Australia who also reviewed Bender's paper before it was submitted for publication. [This may be the article referred to: Bender, M. Lionel. 1973. "Linguistic indeterminacy: Why you cannot reconstruct 'Proto-Human'." *Language Sciences* 26: 7-12. Ed.]

number of cognates between two languages on a Swadesh list declined until they became vanishingly small. That was **not** the fallacy. His mild conclusion was that therefore over time it would become more and more difficult to show genetic relationships between two languages because the number of cognates (retentions) would become too small. We might add that, when two languages show only 4 or 5 retentions, linguists are tempted to propose borrowing as the explanation.

Although others picked up his conclusions and adapted them to suit their own agendas, the core of Bender's fallacy lay in two separate aspects of his conclusions, *viz.*, the Swadesh list itself and the number of languages.[5]

During this era many linguists or anthropologists used the Swadesh list for rapid classification. Confronted with a score of languages in an area, they found the easiest way to classify was to compare a score of Swadesh lists. Bender himself was an active user of this rapid method.[6] It was fairly successful as a taxonomic method until one stumbled over more remote relationships, *i.e.*, those with few retentions showing on a Swadesh list. But the mistake here, or part of the fallacy, is to assume that the Swadesh list was the **only method** to use in classification. Any standard textbook in historical linguistics would tell you otherwise because in the absence of the full Comparative Method there was always the rest of the vocabulary; and then there was the grammar, believed by most linguists to be the most reliable guide to classification.[7] Assuming that the Swadesh 200-list contains the most conservative lexical items in any language, still this is not at all to say that the other 9800 words will fail to show cognates.[8] Taking only Greenberg's[9] African taxonomy, for his Afroasiatic family we find 78 cognate sets of which 24 are on neither Swadesh list, *i.e.*, 69% of his cognates are from basic vocabulary as defined by Swadesh[10]. In addition Greenberg lists 17 grammeme sets, *i.e.*, shared morphological retentions, for Afroasiatic, of which just two are on the Swadesh list; he also discusses grammatical similarities in more general terms.

It is remarkable that so much linguistic work revolves around binary sets of languages, twosomes. One wonders what would have come of the Swadesh lists if Swadesh had set up his system using three or four languages – or ten. Because the binarist assumption brings out the second part of the fallacy. The fewer the number of languages compared the smaller the cognate harvest. Or the more languages compared the greater the cognate harvest. Binarism guarantees the minimum harvest because it is the minimum comparison. Small wonder that Greenberg often bemoaned binarism as a common device of linguistics.[11] Binaristic comparisons probably maximize the chances that a small number of cognates can be attributed to borrowing.[12]

Apparently it took thirty-three years for the obvious to be realized, from Swadesh's introduction of lexicostatistics / glottochronology in 1954 to Greenberg's formal proposal of non-binaristic retention rates in 1987.[13] Just one example of the advantage of larger comparisons can be seen in the following from the tables compiled by Greenberg and James Fox at Stanford.[14]

If two languages are expected to show one cognate (common retention) at 20,000 years, then ten languages can be expected to show 12 cognates at 20,000 years, while twenty languages will show 22 cognates at 20,000 years. Just imagine what 260 Afroasiatic languages might show at 20,000 years, not to mention 950 Austronesian or 1000+ Niger-Congo languages![15] Since historical linguists are indefatigable cognate hunters, consider the serious disadvantage that binarism inflicts on their hunt. With so few cognates to work with in a more remote relationship there would be few opportunities to establish phonetic correspondences, the life blood of the Comparative Method. Small wonder that linguists trained in classical Indo-European methods[16]

would despair of remote relationships. Since all or nearly all Americanist historical linguists receive such training, their orientation towards remote relationships would appear predictable. This was the audience that greeted Greenberg's Amerind book, prepared to "shout it down" even before reading it.[17]

If, then, the 6000-8000 year rule contained a fairly obvious fallacy at its core, why would intelligent and well-informed linguists accept it , embellish it, and draw it into the heart of their research? The answer to that question is probably hidden, although formal appeals to quality standards and rigor or rigorous applications of a Neogrammarian version of the Comparative Method can be heard. My tentative hypothesis is that the "mainstream" Americanist linguists **did not want** to do such deep inquiries as Greenberg did, that a more middling range of inquiry such as Iroquoian or Penutian better suited them, and that the honor of linking all the American languages in one family, however that might be accomplished, ought to belong to their generation. There were signs of real anger among some friends of Greenberg (of his generation) and their students that this 'outlander', this 'foreigner', dared to invade and conquer their turf. [18]

There was finally the steady drift, manifested in graduate training, of historical linguistics in America towards a more careful, more cautious, more technical, and more theoretical approach to the field in fairly sharp contrast to the two generations of historical linguists who preceded them. Americanists like Edward Sapir, Alfred Kroeber, Morris Swadesh or William Elmendorf could be very technical, very careful grammarians, yet could also entertain bold hypotheses which they presumed could be tested and found guilty or innocent on their merits and not just because they had been attempted.[19]

In sum then, there are serious disadvantages for historical linguistics in particular, and prehistory in general, in maintaining an heuristic hypothesis which is based on a simple fallacy. Those who wish to work on more restricted problems, like Iroquoian or Penutian, can always do so, just as workers in other sciences are free to investigate in depth lesser aspects of general problems that they are concerned with. There is no good reason to preclude or forbid the more venturesome types from digging deeper or ranging farther or calumnizing those who dare to do so. Indeed until recently in prehistory and historical linguistics the normal expectation has always been that macro-workers and micro-workers co-exist peacefully and that they benefit each other.

Since opponents of Greenberg and those who propose long range comparisons seem to have driven such comparisons out of respectability in Anglophone North America and the United Kingdom, one may wonder if the collective effort of Anglophone historical linguistics has lost all interest in the remoter past, *i.e.*, that older than 8000 years ago. That may well be true for most practitioners of historical linguistics but there is at least one surprising exception. One linguist,[20] and presumably her students, ventures into deeper prehistory without apology but without apparent criticism. It thus seems to be the case that one can do serious deep probing into language prehistory without using the comparative method at all and yet be socially accepted! The crux of the matter appears to be that such probing is acceptable as long as it is not done in the Greenbergian manner or by those who call themselves "long rangers." This also suggests that the Americanist revolt against long range work was in fact personal, not principled.

However, what is surprising about Nichols' work besides its apparent ready, indeed enthusiastic, acceptance is that her bases for proposed hypotheses are ***typological*** ! Strictly speaking, she proposes genetic relationships based on typology. What is amazing about that is that typological considerations have long been regarded as **non-genetic** considerations. This used

to be taught as a normal principle of historical linguistics. One of the things that Joseph Greenberg was famous for, and much admired for, was his work on typology. And one well known principle of Greenberg's work was that a typological classification of X languages was not the same as, sometimes very different from, a genetic classification. This is simply a basic tenet of historical linguistics. Why then are Nichol's hypotheses so popular and so readily accepted?

I cannot answer that question.

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[1] Afroasiatic is probably the best example, having Egyptian and Semitic well differentiated from each other 5000 years ago, while the bulk of the family's branches live far to their south. Australian which is widely accepted as a phylum can hardly be stuffed into an 8000 year bag; neither can Niger-Congo or Khoisan for that matter. Both are widely accepted phyla.

[2] Swadesh's proposal has produced three different versions of itself, viz, glottochronology for absolute dating and lexicostatistics for both taxonomy and relative dating. Thus if language A has 64% of a Swadesh in common with language B but only 50% in common with language C, we can say that A and B separated about a millennium ago, while C separated from A at an earlier date, but also that A and B probably form a sub-group or class distinct from C or within ABC. Similarly AC is relatively older than AB. Bender was primarily concerned with classification in his work.

[3] Paul Black had a number of papers on glottochronology published, as had his mentor at Yale, Isidore Dyen. Jointly with Joseph Kruskal, a mathematician, they published one of the best analytical books on glottochronology ever.

[4] Unfortunately Bender's most recent opinion cannot be obtained because he has recently died. I am sorry about that and want to stress that his many contributions to Afroasiatic linguistics are in no way doubted.

[5] I want to stress that a much older and more general observation in historical lingistics has been with us for generations, viz., there is a general relationship between linguistic change and time or the greater the difference between two languages the more time is likely to have passed since their common origin. This does not preclude any case of rapid change in a language under some conditions. Also change may take place rapidly in one of the primary sectors of a language, either phonology, grammar, or the lexicon, without other sectors being as rapid or changing at all. English after the Norman Conquest illustrates such change in grammar and lexicon, while such South African Bantu languages as Xhosa or Zulu illustrate fairly rapid phonological change during the absorption of many Khoisan speakers.

[6] Cf M.L.Bender, 1976. *Languages of Ethiopia.* Or the like.

[7] At the epitome of this belief stood the late Robert Hetzron who argued that "shared morphological innovations" were the best evidence of all. Indeed such innovations are clearly valuable. However it is oft forgotten that the discovery of shared innovations depends on the reconstruction of a proto-language against which both shared innovations and shared retentions can be compared.

[8] Making the reasonable assumption that almost any language has a vocabulary of around 10,000 words. There is another section of the lexicon which I call the "outer core" which often contains cognates, such as body parts, common verbs, animals, kinship terms other than Mo and Fa. In Fleming 2006 besides 77 "Inner Core" words, some 58 "Outer Core" words are listed. Even 12 "Cultural" words are listed. Thus of 147 proposed cognate sets only 52% belonged to the Swadesh lists. Cf. Harold C. Fleming, 2006. *Ongota: A Decisive Language in African Prehistory*. Wiesbaden: Harrassowitz Verlag.

[9] Joseph H. Greenberg, 1963. *The Languages of Africa.* IJAL, Vol.29, No.1, p.1-171 plus 6 maps. Pages 42-65 "Afroasiatic."

[10] This could, of course, also be cited as a tribute to the usefulness of the Swadesh list. These basic vocabulary items are also the most likely items to be recorded in the numerous old explorers' or travelers' accounts and missionary tracts which classifiers rely on for a great deal of their data.

[11] Personal communication at a conference of the Society of African Linguists in Boston, March 1981. This was not a rare communciation, nor especially private.

[12] Conversely a binaristic comparison which focuses on grammar may yield very clear and technically pleasing results, especially if informed by transformational generative theory. A focus on phonological traits could also welcome binarism.

[13] I have made no search of the literature to find others proposing the same thing, so there may have been.

[14] All calculations from Joseph H. Greenberg. 1987. *Language in the Americas*. Stanford. Stanford University Press. See especially pages 341-344. Appendix A. With the help of James Fox Greenberg later sent me the calculations up through 80 languages. There is no mathematical doubt that these calculations could be extended to much larger numbers of languages.

[15] Naturally twenty Bantu languages would yield something like 94 cognates because their time depth is much less than 20,000 years. What Greenberg calls "recoverable vocabulary" is somewhat uncertain because it is not quite clear if he includes the so-called "Hund-dog phenomenon" in his calculations. That is important because a considerable amount of recoverable vocabulary is not on the Swadesh list but through semantic change can be found near or not so far from the regular list. Such German-English pairs as *Vogel-fowl, Schwartz-swarthy, Knochen-knuckle, Fleisch-flesh, Klein-clean,* etc. are recoverable vocabulary not found on the Swadesh list. But this is merely part of the point made earlier that the non-Swadesh portion of the vocabulary always contains cognations in addition to the shared retentions found on the list.

[16] The training of historical linguists in the USA and Canada is overwhelmingly devoted to Indo-European methods. The exception to this might be the training of Egyptologists, Sinologists and Semiticists.

[17] It is also the case that Amerind languages seem to have extraordinary distributions, in the sense that in any given area very closely related and quite remotely related languages will co-habit a specific territory. I once looked at Covarrubius's "Peoples of Mexico" and some word lists assembled therein. I was amazed that I could find so few similarities (potential cognates) among a group of languages. Of course such areas do exist in parts of Africa, e.g., Kordofan, northern Tanzania, southwest Ethiopia, et al.

[18] Such anger had been quite manifest among Africanists after Greenberg's African classification came out. As an interesting by-play in an adjoining field we can note the hysterical rage that greeted Murdock's Africa book. How dare this globalist, this non-Africanist, invade the fields of African ethnology and history! I am reluctant to name or attempt to name specific scholars, party to this anger. As in the Americanist critique of Greenberg's Amerind book, as well as his African book, the critics stressed errors of fact and ignorance of sources, especially their own writings. Rarely were either Greenberg's or Murdock's major hypotheses confronted and refuted or falsified. However Greenberg did have credentials as an Americanist, including his training as well as his publications on comparative Amerind languages.

[19] However for the earlier generations we must mention the massive influence on the side of caution exercised by Franz Boas and this among the very anthropological linguists who pioneered the bolder work; they were, after all, his students.

[20] Johanna Nichols at Berkeley.

MOTHER TONGUE
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The myth of rapid linguistic change (debunked by the Romance languages)

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This paper aims to present data from the Romance languages which undermines the widely held belief that languages have an inherent tendency to change rapidly over time. According to this notion, linguistic change is an autonomous process akin to radioactive decay, whereby phonological and lexical changes gradually accumulate over time at an average rate, conventionally estimated at 15-20% per millennium.

The best known application of this principle is the glottochronological formula $N(t) = N_0 \exp(-\lambda t)$,[1] derived by Morris Swadesh for calculating the time of divergence between languages on the basis of the number of differences in lexical items on a standardized list of basic words.

Sheila Embleton has made some interesting suggestions as to the likely origin of the notion of a constant rate of change, linking Swadesh to his former mentor Sapir and naming Latham as the first contributor to the field in 1850.[2] I would nevertheless attribute the principle of arbitrary change firstly to Schleicher, who saw language as an independent organism and latterly to Saussure, who criticized Schleicher's vitalistic explanation, but decided that it was expedient to adopt the principle itself in order to support his theory of the arbitrary nature of the sign, representing change as the manifestation of a kind of collective subconscious.[3] As I shall show, the field of language dating is still suffering from this malign legacy.

Swadesh's apparently elegant and simple formula has nevertheless been largely discredited as a generator of positive results, since it gives dates for closely related languages which are far too shallow, e.g. the date of divergence between Spanish and Portuguese is placed in the 17th century. While written records for these languages only go back to around the 11th century, in even the earliest texts, both languages of the time are immediately recognizable to speakers as the respective modern languages.

At the same time, as a generator of negative dates, it is still alive and well, with the radioactive decay analogy of language change happily pressed into service to justify break-up dates of proto-languages at low time depths, most notably for the case

[1] Where $N(t)$ = the residual vocabulary at time t, N_0 the original vocabulary size and λ the rate of replacement

[2] Time Depth in Historical Linguistics, pp. 145-6, McDonald Institute for Archaeological Research, Cambridge (UK), 2000.

[3] "Other human institutions, customs, laws, etc. are all based in varying degrees on natural connections between things. They exhibit a necessary conformity between ends and means. Even the fashion which determines the way we dress is not entirely arbitrary. It cannot depart beyond a certain point from requirements dictated by the human body. A language, on the contrary, is in no way limited in its choice of means. For there is nothing at all to prevent the association of any idea whatsoever with any sequence of sounds whatsoever". F. de Saussure, Course in General Linguistics, p. 111.

of Indo-European, the protolanguage of which, it is argued on the basis of the observed accumulated change, cannot be older than 6 millennia or so.

It should be evident, however, that the argument for the time depth of Indo-European and the divergence of modern languages such as Spanish and Portuguese are essentially different aspects of the same problem of calibrating the rate of language change. The same also applies to more recent phylogenetic work, in that the base date for the break-up of Proto-Indo-European is an artifact of the dates for the break-up of the respective daughter families such as Romance, Slavic, Germanic, etc. In other words, everyone extrapolates backwards from recorded history. But if the positive dates generated by the rapid radioactive change approach are nonsensical, it seems plausible that the negative dates for proto-Indo-European are likely to be equally suspect.

Despite many contributions to the field of glottochronology, it is surprising how little of the discussion actually analyses the kind of linguistic change taking place – are we dealing with borrowings from other languages, internal borrowings, cases where there were two words for one object in the parent language and one has become predominant in one daughter language and another in the other? There is much discussion of how to tweak Swadesh's formula to give better results but little empirical work here. As I shall show, in the case of recent papers such as Starostin (1989),[4] this is due to an ideological bias in that the result has been decided in advance in favor of the traditional invasion theory.

I decided to analyze the retention rate using data from Romance family, both on grounds of familiarity with this group and more importantly, because it forms one of the few cases[5] where there is relatively extensive documentation for both a clearly datable mother tongue and **several** daughter languages.

While Latin had probably been spoken in Central Italy for a millennium and possibly much longer before the rise of imperial Rome, we know that the earliest date for the spread of Latin outside its homeland to Northern Italy, Sardinia and Catalonia can be dated relatively precisely to the end of the 3rd century BCE. Galicia and Portugal, while nominally subjected in the mid-2nd century BCE, were still only superficially Romanized by the reign of Augustus and the spread of Latin to Romania was the result of the heavy ethnic cleansing by Trajan's legions in the early 2nd century CE. This is evidently almost as long a period as the time from Shakespeare to the present day, so that the amount of intervening linguistic change should be correspondingly great.

The idea that the respective Romance languages merely owe their differences to the fact that they reflect different stages of Latin was formulated at the end of the 19th century by Gustav Gröber, but, as will become apparent, the reality is much more complex,[6] since local variants would continue to evolve or be replaced (cf. mediaeval England, where Norman French, introduced in the later 11th century was gradually replaced by Parisian French from the late 12th century onwards).

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[4] Starostin. Comparative linguistics and lexicostatics. in Time Depth in Historical Linguistics. Ch. 11 McDonald Institute for Archaeological Research, Cambridge (UK). 2000.

[5] In theory, this kind of analysis may also be possible between Sanskrit/Prakrit and the modern Indo-Aryan languages, Ancient Egyptian and the Coptic dialects. Old Chinese or Classical Arabic and their modern dialects.

[6] This would seem to explain the hypervariability displayed within the Sardinian dialects for such words as KEY (VLat *clavis* > Sardo *ciae, giae, crae*), where *crae* is an earlier form and *ciae/giae* a later import by Italo-Celtic settlers from a Ligurian-Piemontese source. We have the same double process in Portuguese: CLAVIS > chave, but CLAVUS (nail) > cravo.

Furthermore, the vectors for the spread of Latin changed over time – the bulk of initial settlers of Sardinia and Spain were civilians and farmers and hence are likely to have spoken a regional dialect, while Dacia was settled by military veterans.

This process can be compared to the linguistic settlement of the New World. In the case of the United States, it is possible to map certain dialect regions of the British Isles onto certain regions of the US (e.g. East Anglia to New England, Dutch substrate to Brooklyn, SW England to Virginia, due to immigration by Cavaliers). In the case of Brazil, linguistic settlement was more homogeneous, but what was transmitted was not the Portuguese of the royal court but a mixture of dialects with the 'interamnense' [region between the Douro and the Minho rivers] dialect predominating,[7] the point being that American English was born different from the English of England because it reflected the differentiation already present in the dialects of the mother country, but after settlement, if anything, the languages of the colonies proved more conservative than those of the mother country.[8]

This view of very early regional differentiation evidently conflicts with the conventional view in the English-speaking world that the entire Roman empire spoke a homogeneous Latin until around 500 CE, which only subsequently differentiated into proto-French, proto-Spanish, etc., but as I shall show, there is solid phonological and lexical counterevidence.

In fact, it would be more accurate to split Latin in Western Europe into 3 phases: a) initial colonization, in which different areas received different regional inheritances, b) functional empire, in which these inheritances could be and probably were modified due to the high degree of mobility around the Empire, c) dysfunctional empire, which brought rigidity and isolation..

Furthermore, the impetus for consolidation of regional differences was the onset of period c), but this process did not start in the 6th-7th centuries, long after imperial institutions had ceased to function except in fragmentary and local form, but during the civil war and hyperinflation of the 3rd century and the Draconian resolution which it received in the rigid administrative system imposed by Diocletian, whereby the Western empire was henceforth governed from three provincial capitals (Milan, Trier and Sirmium) rather than from Rome, largely dividing it into zones with far less movement between them. I shall briefly attempt to demonstrate that these processes appear to be reflected in the historical phonology.

Clearly, attempting to model such complex processes in terms of a single factor of gradual linguistic change makes no sense at all.

The conventional view fails to see behind the façade of survival of formulaic Latin until the early Middle Ages, but if one wants an analogy, consider German-speaking Switzerland or Northern Italy, where most people speak a dialect which is largely incomprehensible to outsiders but the language of formal speech and all writing is a national standard (Hochdeutsch or Italian). If some future archaeologist had nothing more to go on than the written evidence, no matter how copious, then despite having every copy of the Neuer Zürcher Zeitung ever printed, he or she would be unlikely ever to discover the true degree of pervasiveness of Schwyzertüütsch.

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[7] Chaves de Melo, G., A língua do Brasil, FGV, 1971, p. 117.

[8] Indeed, as the colonies grew in economic stature, so did the frequency of exchanges with the mother country, even reversing the process of linguistic change. While speakers of British English are instantly aware of Americanisms, such as *apartment, subway, eggplant* and *candy store*, how many even register that words such as *radio, raincoat, peanuts, private school, billion, wage* and *pie* are actually imported Americanisms which were conspicuous as such 60 years ago.

But can such a pattern be inferred from the Romance data? I concluded that this issue could be decided both by analyzing phonological change, which I discuss later in the paper, and by doing a thought experiment on Swadesh lists. Between Classical Latin and the modern Romance languages, there is an apparent rate of lexical replacement of around 20-25% over 2 millennia. If, as the conventional view has it, a relatively homogeneous form of Vulgar Latin had still been spoken across the Roman Empire when it fell to the Germanic invaders, the lexical changes between Latin and the modern Romance languages would simply represent accumulated random local drift since then and the fact that Castilian speakers had replaced 'can' by 'perro', or French speakers 'moult' by 'beaucoup' would be of little or no relevance to Portuguese or Italian speakers. If, on the other hand, the model for the spread of Latin was similar to that for the spread of English or Portuguese into the New World (and it is recognized that in many cases, the New World variants are more conservative than the languages in their homelands), then we would find that it would be the same words on the Swadesh list which had changed across all languages since the new colonies were actually receiving a Vulgar Latin inheritance which differed from Classical Latin.

LEXICAL EVIDENCE

If we take Starostin's Swadesh lists for Classical Latin, Portuguese, Spanish, French, Italian and Romanian and remove all of the universal cognates – i.e. where the Latin word has been fully conserved in all daughter languages (e.g. manus – P. mão, S. mano, F. main, I. mano, R. mînă) we have the following changes (fields are left blank if they represent an obvious survival of the Classical Latin form):

	Classical Latin	**Vulgar Latin**	**French**	**Spanish**	**Portuguese**	**Italian**	**Romanian**	**Comments**
				COMPLETE DISAPPEARANCE OF CLASSICAL LATIN				
All	***omnis***	*tottus*	*tout*	*todo*	*todo*	*tutto*	*tot*	CLat. 'totus' áll', omnis present in Italian 'ogni'
Large	***magnus***	*grandis*	*grand*	*grande*	*grande*	*grande*	*mare*	Ro. From 'mas, maris' –male animal.
Bird	***avis***	*aucellus, passer*	*oiseau*	*pájaro*	*passaro*	*uccello*	*pasăre*	Sp. , Po., Ro. < CLat. passer 'sparrow'
Burn	***urere***	*ardere, cremare*	*brûler*	*queimar*	*quemar*	*bruciare*	*arde*	Fr., It. From Gmc or perhaps from Lat. ustulare
Fat	***pinguedo/ adeps***	*crassus*	*graisse*	*gordo*	*gordura*	*grasso*	*grasime*	Po., Sp. < 'gurdus'- heavy, dull (Quintillian claimed the word was of Hispanic origin (1st Century AD) 'Grassi' also mentioned in the Reichenau glosses. suggesting that 'pingues' had long since been lost in Francia.
Fire	***ignis***	*focus*	*feu*	*fuego*	*fogo*	*fuoco*	*foc*	VLat. 'focus' – hearth

	Classical Latin	Vulgar Latin	French	Spanish	Portuguese	Italian	Romanian	Comments
Eat	*edere*	*manducare, comedere*	*manger*	*comer*	*comer*	*mangiare*	*monca*	Fr., It., Ro. 'manducare' – eat with hands. Sp. Po., from VLat comedere –eat together – already present in Catullus
Lie down	*cubare*	*stare collocatum*	*être couché*	*estar acostado*	*estar deitado*	*iacere/ coricarsi*	*sta culcat*	Fr. From collocatum 'lying down', Sp From acostatum 'lying on side'
Liver	*jecur*	*ficatūm*	*foie*	*higado*	*figado*	*fegato*	*ficat*	VLat – from goose liver fed with dried figs < Gk 'hēpar sikōtón'. Also mentioned in the Reichenau glosses. suggesting that 'jecur' had been lost in Francia.
Man	*vir*	*homo*	*homme*	*hombre*	*homem*	*uomo*	*om/ bărbat*	CLat 'vir'- man (vs. woman) replaced by CLat 'homo' – man (in sense of human being) Ro. bărbat < CLat 'barbatus' - bearded
Mouth	*os*	*buccam*	*bouche*	*boca*	*boca*	*bocca*	*gură*	Ro. <VLat. 'gula'- throat – also in French dialect/slang – 'gueule' for 'mouth, face'
Skin	*cutis*	*pellis*	*peau*	*piel*	*pele*	*pelle*	*piele*	<CLat 'pellis' - hide
Small	*parvus*	*parvus, pisinnus*	*petit*	*pequeño*	*pequeno*	*piccolo*	*mic*	Dialectal forms. Italian prob. cognate with Calabrian 'mikku' small quantity, Ro. 'pic' - drop
Yellow	*flavus*	*galbinus*	*jaune*	*amarillo*	*amarelo*	*giallo*	*galben*	Fr., It. Ro. < CLat. 'galbus' – pale green. yellow. Po., Sp. < CLat 'amarus' – bitter - referring to bile
Road	*via*	*camminam*	*chemin*	*camino*	*caminho*	*via / cammino*	*drum*	'Camminam' appears to be a borrowing from continental Celtic. Ro. 'drum' borrowed from Gk. 'dromos', probably through Slavic.
Stone	*lapis*	*petra*	*pierre*	*piedra*	*pedra*	*pietra*	*piatră*	A borrowing from Gk 'lepas' (bare rock), replaced by another Gk. borrowing, 'petra'. 'lapis' still in use in Port./Sp. Meaning 'pencil'
EXTENSIVE REPLACEMENT OF CLASSICAL LATIN								
Feather	**penna**	*penna / pluma*	*plume*	*pluma*		*piuma*		Cl. Latin – pluma is down, vs. penna 'tailfeathers'
Go	**ire**	*ambulare*	*aller*			*andare*	*umbla, merge*	Ro. 'merge' < 'mergere' (sink, plunge)

	Classical Latin	Vulgar Latin	French	Spanish	Portuguese	Italian	Romanian	Comments
Head	**caput**	*caput, testa*	*tête*			*testa*		VLat. 'testa' – pot and subsequently skull.
Hear	**audire**	***audire***	*entendre*			*sentire, udire*		Fr. < Lat. 'intendere' – understand. It. < Lat. 'sentire'
Know (a fact)	**scire**	*sapere*	*savoir*	*saber*	*saber*	*sapere*	*şti*	CLat 'scire' cognate with Skt 'chyati' – cut off. Logudoro iskire. VLat 'sapere' from taste > have good sense > be wise.
Kill	**occidere**	*occidere*	*tuer*	*matar*	*matar*	***uccidere, amazzare***	*omori, ucide*	Ro. Loan from Slavic, OCSl 'umoriti' Fr. From VLat 'tutare' – protect oneself against, extinguish. The idea of 'extinguishing a flame' is already present in Latin – 'ignem tutare'. 'matar'/ 'ammazzare' from VLat 'mattea, club
Long	**longus**	***longus***		*largo*	*comprido*			Sp. < VLat 'largus' abundant. Port. Mediaeval past part. of comprir – meaning completed.
Sand	**arena**	***arenam, sabulum***	*sable*			*sabbia*	*nisip*	Ro. Loan from Slavic 'nasip'- powder, what is scattered. NB Neapolitan/Sardo 'arena', Calabrian/Sicilian 'rina'. Also mentioned in the Reichenau glosses, suggesting that 'arena' had lon since been lost in Francia.
White	**albus**		*blanc*	*blanco*	*branco*	*bianco*		Germanic Loan
ISOLATED REPLACEMENT OF CLASSICAL LATIN								
Dry	**siccus**						*uscat*	Ro. < VLat ex-sucare 'suck out juice' , cognate with It. asciutto
Earth	**terra**						*pămînt*	Ro. < CLat. 'pavimentum" – floor- also in Logudoro 'pamento' - pavement
Heart	**cor**						*inimă*	Ro. < CLat 'anima'soul
Knee	**genu**			*rodilla*				Sp. From VLat. 'rotella' little wheel
Leaf	**folium**						*foaie/ frunză*	Ro. <VLat 'frōns, frondis' – foliage, also in Logudoro. 'frundza'. Pugliese. 'fronza' 'foaie' – now in more restricted

								sense of sheet of paper
Many	**multus**		*beaucoup*					First use at end of 14th century, replaces *'moult'* in the 16th century
Meat	**caro**		*viande*					VLat – 'vivanda' 'food, provisions – cf. ME victuals. Acquired specific meaning of meat from the late 14th century onwards.
Neck	**collum**				*pescoço*		*gât*	Ro. Loan from Slavic, Scr 'gut' throat. Po. Prob. VLat formation meaning 'nape', 'back of head'.
Seed	**semen**	*sementem*	*graine*					CLat *granum* grain

* blank spaces in the table indicate conservation of the Classical Latin word.

Where we have a Classical Latin word replaced across all 5 languages with a word extant in Vulgar Latin, it seems reasonable to assume that the word was already present in Vulgar Latin with more or less its current meaning, since the alternative requires us to derive a much more complex post-imperial interregional semantic transmission mechanism, and as mentioned, following the Civil War/Diocletian's reforms, movements of trade and people were progressively restricted. We can probably assume the same regarding borrowings into some but not all of the Romance languages, particularly if present in Italian (the descendant in the core area) or Romanian (unlikely to be a borrowing after the *de facto* abandonment of Dacia after 275 CE).

Evidently, where we have words which are clearly of Vulgar Latin origin, but are only present in one of the five languages, we have to investigate etymologies on a case-by-case basis in order to determine whether the word is likely to have had its modern meaning by the cut-off point for Vulgar Latin around 500 CE. In some cases, we can probably conclude that it did (e.g. Sp. '*rodilla*' – knee, since it incorporates the d>t mutation,[9] and in others (e.g. Fr. 'entendre') the semantic shift is probably mediaeval, since we know that while this word has an impeccable Latin pedigree, the original word for 'hear', '*audire*', survived for a long time as '*oir*'.

Hence, if we look, for example, at French, we have 27 changes from the Classical Latin Swadesh List, but only 7 of these are likely to have acquired their current meaning after 500 CE (*brûler, aller, entendre, tuer, beaucoup, viande*), and even '*aller*' may not belong in this category, even if its extraordinarily complex etymology makes this hard to determine.[10]

Analogously, I would rule out borrowings like '*blanc*' and '*pierre*', since they are present in all the Romance languages and must thus date back to the Roman empire.

For Spanish, we have 22 changes from the Classical Latin Swadesh List, but only 2 of these may have acquired their current meaning after 500 CE (*largo,*

[9] Cf. Lloyd. From Latin to Spanish, p. 2

[10] Usually derived from '*ambitare*' or a non-attested form '*alare*', even if '*transalare*' exists. This could derive from '*ala*' wing (indeed, we have British slang – 'wing it' meaning to 'leave in a hurry'), or from Greek '*alaomai*' – wander around.

amarillo), both of which have impeccable Vulgar Latin etymologies, with '*amarillo*' present in early 10th century texts.[11]

For Romanian, we have 24 changes from the Classical Latin Swadesh List, including 4 borrowings from Slavic/Greek (*drum, omori, nisip, gît*) and 3 words of Vulgar Latin origin, but it is not possible to determine whether they had acquired their current meaning by the end of the Roman Empire (*inimă, mare, merge*).[12]

Portuguese and Italian give similar results to Spanish.

The conclusion is absolutely clear from this. If we analyze the change between the Classical Latin Swadesh list and the modern Romance Swadesh lists, we find that 70% of the change to Romanian, 75% of the change to French and 90% of the change to Spanish, is likely to have occurred by the end of the Roman empire. The very small remainder represents all the change which has taken place since then – i.e. over 1,500 years. If we convert these figures into retention rates per millennium, we have 94.7% for French and Romanian and 98.5% for Spanish.

These figures are clearly much higher than the conventional Swadesh retention rate of 86%, but should not surprise us, since there are so many words in the Classical Latin Swadesh list which have simply failed to survive into ANY the Romance languages.

It is easy to calculate the probability of this wholesale replacement being due to random drift. Rather than getting bogged down in the details of calculation, I make the simplifying assumption that the rate of language change is a constant across all of the daughter languages,[13] and the probability of 14 words being the same across the 5 languages is simply $[14!(75!)/89!]^4 = 2.95 \times 10^{-64}$, which is vanishingly small.[14]

As a corollary, assuming that we have 20% lexical replacement over 2,000 years, the number of examples of replacements in one language while the other 4 conserved the Latin word would be given by $5(0.8)^4(0.2) = 41\%$, which is just the relevant term of a binomial expansion. The actual figure is 6%. Or the number of cases in which the Classical Latin word changed in all the daughter languages would be $(0.2)^5 = 0.03\%$. The actual figure of 60% or so is evidently 1,800 times greater than expected.

The conclusion from the above table should be obvious: this data is manifestly incompatible with the null hypothesis of random accumulated change and clearly shows that between Vulgar Latin and the present day, the Romance languages have been intensely conservative.

And yet we have cases such as Sergei Starostin's paper of 1989 which attempts to revise the traditional formula. He starts out with the interesting suggestion of doing glottochronology not on words but on roots. This means taking e.g. a Latin text and identifying the number of genuinely Latin words and then seeing how many are preserved in the daughter language, but then things go badly wrong when he

[11] Cf. entry in Menéndez Pidal, Léxicon hispánico primitivo, Real Academia Española, p. 45

[12] My criterion for determining this is whether there is a word with the same Latin derivation and meaning in another Romance language. E.g. I consider that the meaning of Romanian '*pasăre*' bird had been fixed by 500AD, even though the original meaning was 'sparrow' – because we also find *pássaro/pájaro* in Portuguese/Spanish. Indeed, have entry 163 on the Index Probi, '*passer non passar*'.

[13] If we relax this assumption, the probability that the results were due to random change would be even lower.

[14] This is the same as calculating the likelihood of drawing 14 balls 5 times from a sack of 89 balls numbered from 1 to 89 and getting the same balls every time [NB We are using Swadesh's revised 100-word list with 89 items]. The general formula is $[(y!)(x-y)!/x!]^{(z-1)}$, where x is the total number of balls, y the number of balls drawn and z the number of draws.

decides that the rule governing the rate of lexical replacement is not Swadesh's formula:

$$N(t) = N_0 \exp(-\lambda t)$$

but

$$N(t) = N_0 \exp(-\lambda N(t) t^2)$$

where $N(t)$ = the residual vocabulary at time t, N_0 the original vocabulary size and λ the rate of replacement.

Starostin's point is that roots become more likely disappear with age, hence he accelerates the rate of disappearance by putting in a squared t^2 term. At the same time, since each root has its own rate of disappearance and some are more resilient than others, a kind of natural selection will operate over time which will tend to slow the rate of disappearance of the 'hardier' roots.

It should be self-evident that this is nothing more than a shameless attempt to tweak Swadesh's formula to give the 'Goldilocks' result that Starostin wanted all along, namely divergence dates between closely related languages which are not too low (since it gives a divergence time between Byelorussian and Ukrainian of only 250 years) and divergence dates between more distantly related languages which are not too high (since it gives a divergence time between Russian and Persian of 10,600 years which conflicts with the "more or less established view that the disintegration of common Indo-European took place in the 4th millennium BC").[15]

This approach certainly gives the "right answer" (as tends to occur when one assumes *a priori* that something is true), but also generates a whole series of conceptual and empirical problems. For example, the definition of the rate of lexical change in terms of the resilience of roots, as if words had a kind of inherent mortality or retirement age, is odd, to say the least, and certainly is not borne out by the Romance data, which shows a small amount of 'rapid change' (which is actually just the spread of vernacular words) and then very little change for 1,500 years. But where change does occur, is it actually obeying any kind of law of the kind formulated by Starostin? Take '*edere*' (eat). Is this a weak root because '*edere*' disappears, or a strong root because it survives as '*comedere*' in Spanish and Portuguese? Or is it a weak root because '*comedere*' disappears from Italian, French and Romanian, or a strong root because it displaces '*manducare*' > '*manger*', '*mangiare*', etc., which is also attested in 10th century Spanish texts, in the Iberian peninsula? This is a tautology, not a rule with empirical content.

Or take a highly variable word like 'to kill'. We need only consider English to be aware how many synonyms there are: 'to waste someone', 'snuff out', 'sort out', 'take out', 'bump off'. We can see this process at work in the Romance languages: French has '*tutare*' (extinguish a flame), Iberian '*matar*'/Italian '*ammazzare*' (club someone), etc. But can we make any diachronical inferences about the 'manifest destiny' of a root to survive or disappear, beyond stating that killing people is not a very nice activity and hence the word is more likely to be substituted by a euphemism than a more neutral word like 'flower'?

And as for the t^2 term, where is the empirical evidence for an accelerating rate of vocabulary loss? In most cases, we have a reconstructed proto-language like PIE, a

[15] Starostin, p. 231, *op. cit.*,

parent language like Latin and a daughter language like French. We can measure the rate of lexical change from Latin to French, but in order to be able to tell whether this rate is accelerating or not, we have to be absolutely sure that a) our reconstruction of the proto-language is the right one, and b) that we have the right date for it and not some convenient date for doctoring the formula.

Not only does Starostin fail to provide any empirical evidence for acceleration, the Romance data actually flatly contradicts this view for two reasons: firstly, the rapid and extensive replacement of Classical Latin vocabulary gives way to very little lexical replacement after 500 CE, so his putative rate actually slows down rather than speeds up.

Secondly, it is only because we have extant texts in Classical Latin that we are aware of just how much vocabulary is lost more or less immediately. I call this the '*jecur*' problem, in that every single Romance dialect has inherited a word for 'liver' based on '*ficatus*' and there is no trace of '*jecur*' anywhere. Evidently '*jecur*' cannot be reconstructed from the daughter languages, but we can detect its presence because we have the Classical Latin text.

Now, I did not single out Starostin for criticism just for the sake of being vindictive (in general, I have a high opinion of his work, especially his databases), but because his paper is the source of the key insight that the rate of lexical change of 6-7% over 1,500 years between Vulgar Latin and modern Romance is much lower than that between Classical Latin and modern Romance,[16] which is a major step forward in demonstrating the nature of the evolution of the Romance languages. But Starostin is too busy cooking his formula to appreciate this.

Given such a low replacement rate, it is unsurprising therefore that he tries to make the date of divergence as late as possible by giving us the conventional view, mentioned earlier in this article, that:

> Vulgar Latin is dated differently by different scholars...but it is obvious that it had a unitary nature until the fifth century CE despite the presence of some dialectal differences. It began to separate into dialects between the fifth and the eighth centuries CE and the period of Romance languages dates back to the eighth century.[17]

But this view is flatly contradicted by the phonological evidence. We evidently have a considerable amount of anecdotal evidence from the Roman empire itself such as Gaulish pottery, graffiti, literary renderings of slang (e.g. Petronius) and even explicit linguistic documents, such as the Index Probi, a list of 227 phrases of the "don't say this but this" variety which show how much phonological change had taken place by the end of the 3rd century and then later texts, such as the Itinerarium Egeriae (late 4th century) or the Reichenau glosses (early 8th century).

Furthermore, historical phonologists of French, notably Georges Straka, have used this material to date the phonological changes from Latin to French with a detail which is unparalleled for the other Romance languages, pinpointing phonological changes to within 50-100 years. Analyzing these changes in terms of phonological rules has become standard fare in French universities and I have reproduced a handful of examples from the hundreds presented in popular textbooks[18] on historical French

[16] Starostin, p. 232, op. cit.
[17] Starostin, Footnote 19, op. cit.
[18] Cf. G. Zink, Phonétique historique du français, puf, Paris, 1986.

phonology (with the ranges for the changes indicated in years of the CE), also including some Italian dialectal forms plus Spanish and Portuguese:

ÁK^{W}A > ag^{w}a (350-400) > áwa (400-500) > áęwa (500-600) > ęwę (600-700 in Western France) cf. It. acqua, Port. agua, Sp. agua, Piemontese eva/aqua, Friuli àghe, Liguria aegna, Abbruzzi acchae, Milanese àcqua, Bolognese âcua

BASĬÁRE > basyare (50 BCE-0) >bays'yare (200-300) > bayz'yare (350-400) >bayz'yęre (400-500) > baizięr (600-700), etc., It. baciare, Sp. besar, Port. beijar, Fr. baiser, Logudorese bazare

BÉNE > bęne (100-200) > bięne (200-300) >bięn (600-700) Cf. Port. bem, It. bene, Sp. bien, Sardo bene, Friuli bin, Lombardo bén, Genovese ben

BRÁKKIŬS >brakkyus (50BCE-0) > brakkyus/bratùsyus (100-200) > bratùsyọs (450-500) > bratss (600-700) cf. It. braccio, Port. braço, Sp. brazo, Piemontese brass, Lombardo bràsc, Trentino/Friulano/Romagna braz, Sardo brazzu

HÓDĬE >ódye (50BC-0) > óyye (0-100) > ọ́yye (100-200) >úọ́yye (350-400) > úọy (700-800) > úọi/üi (800-900) cf. Port. hoje, Sp. hoy, It. oggi, Sardo oe, Friulano ue, Piemontese/Genovese ancheuj

KABÁLLU(M) > kaβállu (0-100) > kavallum (200-300) > kavállu (400-450) > ùšęvállọ (450-500) cf. It. cavallo, Sp. caballo, Port. cavalo, Piemonte/Lombardia/Trentino/Romagna cavàl, Siciliano cavaddu Friuliano cjavàl

K^{W}ÁERĔRE > k^{w}ę́rrere (100-200) > k^{w}ę́rrerę (600-700) Cf. Port. querer, Sp. querer

ÓKŬLUS > ọ́klus (100-200) > ọ́yl̯us (200-300) > úọ́yl̯us (350-400) > úọ́yl̯os (450-500) > úọ́yl̯'s (600-700) cf. Port. olho, Sp. ojo, It. occhio, Piemontese euj, Milanese oeùgg, Campania uócchio, Sardo oju/ogru/òcciu, Calabrese uocchiu

NÓKTE(M) > nọ́yte (100-200), nọ́yt'e (200-300) > núọyt'e (350-400) cf. It. notte, Esp. noche, Port. noite, Piemontese neuit, neut, Lombardo nòcc, Liguriano nêutte, Emiliano nôt, Sardinian nocte

PÁUPERE(M) > páupre (0-300) > páubre (350-400) > páuβre (400-500) > pọ́vre (500) > pọ́vrę (600-700) cf. Port pobre, Sp. pobre, It. povero, Piemontese pòver, Genovese pöveo

SPÁT(H)A > ĭspatha (100-200) > ęspátha (200-300) > ęspáda (c. 300-400) > ęspáęða (500-600) cf. Port. espada, Sp. espada, It. spada, Piemonte/Liguria spâ, Bolognese, spèda, Milanese spàda, Sardo ispada, Calabrian/Sicilian spàta

The first point which may be observed from these examples is that the respective Spanish and Portuguese forms were fixed at a very early stage, e.g. ódye/óyye (Pt. hoje/Sp. hoy) by 100 CE, nọ́yte (Pt. noite/Sp. noche) by 200 CE, kavallum (Pt. cavalo/Sp. caballo) and ęstélla (Pt. estrela/Sp. estrella) by 300 CE, ag^{w}a (Pt. agua/ Sp. agua) and espáda (Pt./Sp. espada) by 400 CE. BASĬÁRE is like a miniature museum, in which we can see that standard Italian has never changed the initial vowel to a diphthong, whereas by the 4th century, the respective Spanish and Portuguese forms would already have sounded similar to 'besar' and 'beijar'. Furthermore, having reached baizięr by 700 BCE, French then took 600 years for the final diphthong to revert to ę.

Some of these changes were rejected by Portuguese but accepted by Spanish or vice-versa, ódye/óyye (Pt. hoje more conservative than Sp. hoy) by 100 CE, ǫ́yḻus (Pt. olho less conservative than Sp. ojo), kavallum (Pt. cavalo less conservative than Sp. caballo) and bíęne (Pt. bem more conservative than Sp. bien) by 300 CE, or fǫ́gu > fúǫgu (Pt. fogo more conservative than Sp. fuego) by 350-400 CE, but the point is that these changes, which are held up as the defining differences between Portuguese and Spanish, date to the early Roman empire, not to the Middle Ages.

On this point, it should perhaps be emphasized that the period of mobility before the civil war/reforms of Diocletian of the mid-late 3rd century and a period of relative rigidity thereafter does appear to be reflected in the way that Portuguese and Spanish essentially stop evolving. By the same token, it also makes perfect sense from a sociolinguistic perspective to assume that a change affecting Latin in Gaul during the earlier period of mobility would also have reached other areas of the Roman empire, since speakers of a similar language went to different places, but far less sense to suggest that the change took place in Gaul during this period, but not in Iberia, which maintained the pristine Classical form, but then, centuries later, for no particularly good reason, Iberian Latin suddenly and independently developed the same form as the one present in 3rd century Gaul long after this latter form had mutated into something different in Gaul itself.

Likewise, the fact that Latin continued to innovate in Gaul after 400 CE, most notably with the loss of final vowels, was attributed by Wartburg to Frankish settlement in the North which manifested the Germanic tendency to reduce an unstressed vowel to a schwa.[19] The limits of this settlement traced out the original langue d'oc/langue d'oïl linguistic frontier between Northern and Southern France.

But this apparent situation of early generalized change is apparent rather than real, because what really happened is that the 'colonies' received a vernacular Latin which incorporated dialectal features that diverged from classical Latin.[20] Furthermore, if we assume, as I believe it is reasonable to do on the basis of the above evidence,[21] that Italian dialects were also conservative, then it should immediately follow that we will find striking correspondences between Italian dialects and these languages, although the analogy with Brazilian Portuguese would lead us to expect mixtures of dialectal words from different regions in the daughter languages.

Take the word for 'night': Sp. *noche,* Port. *noite*, Cat. *nit*, Prov. *nuech.* If we recall that the Romans had substantial colonies in Spain by the 2nd century BC, but did not settle Galicia until the early reign of Augustus, it appears from the French form that the reason why Portuguese has a diphthong and Spanish a palatal is that Spanish conserved an earlier form, spoken in the 2nd-1st century BC (which was also established in the North of Italy, cf. Milanese *nòcc*, while Portuguese received a 1st century CE form where it was already absent (although Catalan is also seen to be innovative), probably of Ligurian origin, since we have Ligurian *nêutte* and Emilia *nôt*.

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[19] W. Von Wartburg, La fragmentación lingüistica de la Romania (Spanish tr.), p. 152, Ed. Gredos, Madrid.

[20] Menéndez Pidal pointed out in 1926 in Origenes del español (312) [my translation]: "On another occasion, I shall establish a genetic relationship between the numerous other traces of Southern Italy and Spain, which will contribute to proving the dialectalism of Vulgar Latin against the excessive belief in its uniformity in Imperial times."

[21] Mario Alinei has also provided a large body of evidence of borrowings into Latin from Italic dialects. cf. Origini delle lingue d'europa, Vol. II, Ch. 21, 'Dialetti "moderni" più antichi del Latino; controprove etimologiche." Il Mulino, Bologna, 2000.

Indeed, we can see the linguistic conservatism of the colonies and also how areal differentiation has its origin in Italian dialects by considering the words for 'two' and 'twelve'.[22] In the case of twelve, there is a clear divide between the loss of the medial segment in 'decim' to give Fr. *douze*, Port. *doze*, Sp. *doce*, and its conservation in Italian *dodici*, as well as the conservation of the final *–s* in the West for *duos/duas* and its loss in Italy and the East. I have added the phonetic form in brackets where the pronunciation is very divergent from the standard written form.

	Duos/Duas (Two Masc./Two Fem.)	**Twelve**
Italian	due	dodici
Lombard	duu/dò	dodes [dudes]
Piemontese	doi/due	**dodes [dodz]**
Venetian	du/do	dódexe [dodeze]
Istrian (Croatia)	dui	dudeze
Neapolitan	rujə/rojə	rurəʃə
Sicilian	dui	dudici
Romanian	doi/două	doisprezece
Corsican	dui/duie	dodeci
Sardinian-Sassarese	dui	dodizi
Sardinian-Gallarese	dui	dodici
Sardinian-Logudorese	**duos/duas**	**doighi [doiɣi]**
Sardinian-Campidanian	**duus/duas**	**doxi [dozi]**
Bolognese	dû/dâu	**dågg' [dadž]**
Ligurian	doi/doe	**doze [duze]**
Friulano	**doi/dos**	dodis
Romantsch	**dus/duos**	dudesch
Franco-Provençal	**doux [do]/doves [dwe]**	**doze**
French	**deux**	**douze**
Limousin	**dos/doas**	**dotze**
Gascon	**dus/duas**	**dortze**
Auvergnat	**dou/duas**	**douze [dudze]**
Languedocien	**dos/dois**	**dortze [dutse]**
Provençal	**dous/duas**	**douge [dudze]**
Catalan	**dos/dues**	**dotze**
Asturiano	**dos**	**doce [doθe]**
Extremaduran	**dos**	**doci [doθi]**
Aragonese	**dos**	**doze[doθe]**
Spanish	**dos**	**doce**
Galician	**dous/duas**	**doce [doθe]**
Portuguese	**dois/duas**	**doze**

In the case of words for 'two', the frontier between the preservation and loss of the final –s shows the conservatism of the colonies (the final –s only fell silent in French around 1250), notably in Sardinia (except for Sassarese) and innovation in Italy (except in Friuli, which is linked to Rumantsch). Indeed, this loss in Italy is so comprehensive (and transmitted to Istria and Romania), that it must date to early in the Empire, but we can't see where the nucleus of the innovation lies.

The situation is nevertheless clearer for 'twelve', in that we can see a region in the North of Italy, centering on Liguria, but stretching to Piedmonte, Emilia and Friuli where *decim* has been reduced to a single consonant, *dzə*.

There appear to be further Ligurian inheritances in Portuguese and Spanish. Notably the most bizarre phonological change of all in these languages: pl/cl > ch (Port.) and ll (Sp.). Hence, *clavis* > *chave/llave*, *plenum* > *cheio/lleno*, etc. We have

[22] Numeral systems of the world's languages, http://lingweb.eva.mpg.de/numeral/

Ligurian *ćasa* (It. piazza-square), *ću* (It. più-more) – cf. Mediaeval Port. *chus*, *ćöve* (It. piove – it's raining) – Port. *chove*, *ćén* (full) cf. Port. *cheio*. These forms also appear in Sicily, with Rohlfs concluding: "Since the Gallo-Italian colonies of the island also show a similar result ... we cannot exclude the possibility that this *ć* was imported from Northern Italy with the colonizers."[23] I also wonder about mother/father, we have the regular *madre/padre* in Spanish, but *mãe/pai* in Portuguese and *moae/poae* in Genovese. Evidently, the phonological derivation here is far easier from Ligurian than from Classical Latin *mater/pater* and is made more plausible by the other clear examples of borrowings from Ligurian into Portuguese.

This is not to suggest that this Northern Italian borrowing is the sole inheritance, since Portuguese evidently conserves the final *–u* of masculine nouns, which matches generalized Southern Italian dialects. Or we have Portuguese *boi* (ox): Calabrian *voi/goi*; Sardinian *boe/boi*, but Spanish *buey*.

Or there is *spatha* (sword), but Port./Sp. *espada*, Fr. *épée*. The initial vowel in French, Portuguese and Spanish matches the Sardinian form *ispada*, even if this is probably not a native Sardinian development, since the prosthetic vowel before a consonant appears in graffiti on the walls of Pompeii (*Ismurna*) and still occurs in such Italian forms as 'In Ispagna'. .This word is of evident Greek origin (σπαθί), which suggests an origin in the colonies of Southern Italy, but since we have t>d in the Northern Italian dialects only (Bolognese *spèda*, Milanese *spàda*), it suggests a relatively late borrowing from these into Spanish/Portuguese rather than an earlier one directly from the South.

We also find uncanny phonological similarities between Sardinian and Romanian, most probably representing a shared Southern Italian inheritance: Sardinian *abba* (water)/Ro. *apă* could both be borrowings from Oscan *aapam* (since *p* > *b* is a regular Sardinian development), or there is Sardinian *limba*/Ro. *limbă* (language) or Logudorese *pamento* (pavement)/Ro. *pamînt* (earth).

The French phoneticians who established these examples were evidently only interested in dating French, but even this brief exposition shows, through cases like '*nocte/noite*', there are good reasons to believe that these changes reflect successive waves of Latin dialects, probably starting with the dialects of the South of Italy and then those of Northern Italy, with these preserved in Portugal and Sardinia.

I believe that the preceding combination of lexical and phonological analysis forms a powerful tool for explaining the evolution of the Romance languages. These conclusions may be at odds with conventional wisdom on language change, but they are backed by the French academic consensus on phonological dating, as well as by the fact that Italian dialectal data fits it so well.

APPENDIX: Implications For Dating Proto-Indo-European

In the preceding paper, I noted that a process of random drift does not provide a satisfactory explanation for the changes observed between Latin and the Romance languages. My ulterior motive for doing so is an interest in developing paradigms for analysis of languages at greater time depths, most notably Indo-European and Nostratic, hence in this section, I wanted to explore the implications of the Romance model.

[23] Rohlfs, G. Grammatica Storica della Lingua Italiana e dei suoi dialetti, Einaudi, Turin, 1966, p. 253.

Evidently, by equating the Roman settlement of Western Europe with the settlement of the New World in the 16th-18th centuries, it may appear that I am blithely applying Don Ringe's[24] Uniformitarian Principle, which postulates that *ceteris paribus*, the unobservable past must have been like the present.

What Rome and Mercantile Europe nevertheless shared was the character of a 'total organizing system' with a centre that offered a level of technology and social organization far ahead of any of their potential subjects (at least in the Western Roman Empire) and a constant outward stream of colonizers to a periphery which offered the resources necessary to feed the expansion of the centre. The spread of the language of the centre to the periphery was an obvious corollary to the subjugation, displacement or co-opting of people at the periphery required to ensure the centripetal flow of resources.

Furthermore, the key element in the model for linguistic change in the centre-periphery system is the fact that it was a socially stratified system, in which the formal language of the élite had diverged from the language of the plebs, and it was the transmission of the everyday language to the colonies rather than the élite language which gave the illusion of initially rapid language change. However, because the inherent rate of language change is low, once the regional forms from the motherand had been established as the local colonial standard, the rate of change reverted to a low level.

It should also be recalled that the reason why the language of the plebs diverged from the élite language was because it reflected an earlier smaller-scale process of colonization within Italy itself, whereby the central system incorporated speakers of other languages such as Faliscan, Oscan, Umbrian, Greek, Etruscan and latterly the Gallo-Celtic languages of Northern Italy.

We must therefore ask whether there are any grounds for believing that a putative proto-Indo-European language spoken by 'Kurgan' peoples in an area confined to the Pontic Steppes could have generated and spread the diversity characterizing Indo-European.

Frankly, it is hard to believe that it could have done so, since the conditions for formation of a stratified society were absent among pastoralists, who like the Altaic peoples of Central Asia, needed to maintain long-range alliances and kinship ties to support their nomadic lifestyle – this evidently allowed the organization of very large temporary military confederations which could no doubt have scared peasants on the receiving end out of their wits, but also militates against their ability to promote systematic cultural and economic reorganisation since the political centre of such a confederation is always the charisma of the tribal leader and seldom outlasts him. One need only read one's history of the Germanic/Mongol invasions, etc. to see this point repeated over and over again.

Despite this, the Kurgan hypothesis still enjoys some currency, even if to me, it seems like little more than a hoary survival of the Indo-Germanicist racist-nationalist superiority complex of the late 19th century. Even at that point, the more intelligent scholars such as Brugmann realized that idle speculation on invasions and homelands was a can of worms, but from time to time, the can receives a new label, such as Gimbutas' attempt to rebrand the invaders as destroyers of an earth-goddess

[24] D. Ringe, The Linguistic Diversity of Aboriginal Europe, Language Log, 6/1/2009: "Unless we can demonstrate significant changes in the conditions of language acquisition and use between some time in the unobservable past and the present, we must assume that the same types and distributions of structures, variation, changes, etc. existed at that time in the past as in the present."

worshipping peaceful Neolithic farming culture,[25] or more recently by David Anthony's[26] 'bling-bling' version which has the farmers shocked and awed by the immense wealth and prestige of the Bronze Age riders from the steppes. Given that so much has already been written against Gimbutas, I shall concentrate on discussing Anthony, whose account is so problematic that it's hard to know where to start one's criticisms.

The implausibility of his theory becomes clear when one starts to do a few *ad hoc* calculations on demographics. Pulling a few figures out of Anthony's book, he claims that we have about 150 Sredni Stog sites (around 4,200-3,700 BCE), which are relatively small and mobile. This figure probably represents an upper limit, since not all were in use at the same time, but cemeteries such as Igren[27] are miniscule, with about 12 individuals. Were there even 50 people per settlement? If so, the entire culture would have consisted of 5,000-7,500 people. This compares with a neighboring Old Europe culture, such as Cucuteni-Tripolye, which had perhaps 350 settlements at its peak. If we take the illustration of the Habaşesti I settlement[28] as an average of about 40 structures, including 10 large ones and assume that all of these are family dwellings (and some may have ritual or ceremonial use), we can make a wild guess as to how many inhabitants each one had, the large ones presumably not more than 25 and the small ones probably about 10, to give a village of about 550 people. If there are 350 of these, we have a total population of about 175,000.[29]

While these figures are very rough, they are probably of the right order of magnitude and show that the Sredni Stog population would have found it difficult even to take over Tripolye.

But even if every single inhabitant left the Steppes to realize their manifest destiny, they would only have represented around 1-2% of the population of Europe. To put this into perspective, Bacharach[30] has estimated, based on the Battle of Moirey between Aetius and Attila in 451 CE, considered by the Romans of the day to be the most gigantic battle of all time, with 50,000 men in the field on either side (Franks, Visigoths, Burgundes and Bretons for the Romans and Huns, Ostrogoths, Burgundes and Gepids against them), that the number of Germanic invaders in Gaul at the time (calculating a ratio of 5 wives and children per warrior) was around 200-300,000 out of a total population of Gaul of 6 million or so, with many of the Roman foederatii subsequently settling in Burgundy and Northern France. Despite this, their linguistic impact was minimal, as it was in Romania, even though this area was only part of the Roman Empire for 150 years.

If we use the same ratio, we are asked to believe that at most 50,000 Bronze nomads and their descendants succeeded in imposing language change on most of

[25] One wonders about Tacitus' description in Germania of 7 Germanic tribes (including the Angles) who worship the earth goddess Nerthus, as well as the Aestii (who are thought to be Balts) who worshipped 'The Mother of the Gods.'

[26] D. W. Anthony, The Horse, the Wheel and Language, Princeton University Press, 2007.

[27] D. W. Anthony, *ibid.* p. 246.

[28] D. W. Anthony, *ibid*, p. 231.

[29] This vaguely agrees with McEvedy's figure of 100,000 people for Romania in the mid-Neolithic. McEvedy also suggests a figure of 25,000 for Ciscaucasia around 3000 BC, which is of similar dimensions to the Sredni Stog Area and occupied by pastoralists, hence I assume similar population figures. Applying J.R. Biraben's doubling time of 1,700 years for the period 5000-1000 BCE implies a figure around 4000 BCE of 15,000 people for the Sredni Stog area. By contrast, around 4000 BCE, taking McEvedy's Balkan estimates and assigning 50% of the total to Greece, there would have been about 200,000 people in Greece and the same number in the remainder of the Balkans excluding Romania and Hungary. C. McEvedy, Atlas of World Population History, Penguin, 1978. pp. 97, 111, 157, 344.

[30] Cited in J.-P. Bardet, J. Dupâques, Histoire des populations de l'europe, Vol I., p. 144, Fayard, 1997.

Eurasia in 500-1,000 years, including 3 million people in Europe alone, so completely as to obliterate all traces of substrate languages, even in marginal areas like Norway, when 300,000 Germanic tribefolk concentrated in an area about a twentieth of the size had had no lasting impact beyond a few borrowings and sound changes. Indeed, where did all their surplus largesse of wagons/cows/horses etc. that they needed to impress the natives actually come from?

Even more oddly, Anthony actually proposes a similar model to the spread of Romance: differentiation of Proto-Indo-European within a core area (the Pontic Steppes) into highly divergent dialects such as proto-Hittite, proto-Germanic, etc., in a space of 1,500 years or so (4,000-2,500 BCE or so) and their subsequent spread throughout Europe. He doesn't actually give any details of the transmission mechanism beyond the Balkans, which is rather like writing a history of the United States which only discusses 17th century New England, but we can at least surmise from this that in his theory, Proto-Indo-European was never spoken West of Romania.

It goes without saying that this flies in the face of the hydronymic evidence for the existence of an Old European substrate first postulated by Krahe, which most significantly, has been extended to Andalusia by Francisco Villar[31]. There is no mention of hydronymy in Anthony's book, but it seems to me that this body of evidence pointing to older layers of Indo-European is potentially fatal for his theory.

Furthermore, there is nothing I am aware of in the modern lexical data to support the view that a homogeneous language spoken in a relatively small area by 25,000 or so pastoralists around 4000 BCE would have split into anything up to a dozen deeply divergent languages in only 1,500 years. It would be far more plausible to adopt a rate of lexical displacement characteristic of a nomadic language group such as Altaic, with a divergence rate calculated from the changes betweens old Turkic (8th century) and modern Turkish[32] of around 5% per millennium.

This evidently includes the Anatolian group, which, according to Anthony, cannot possibly have been in Anatolia in the 7th millennium as Renfrew would have it, since there are only 3 languages (Hittite, Palaic and Luwian) documented in the 2nd millennium, at this kind of time depth, one would expect far more diversity and besides, they have borrowed from non-IE languages such as Hurrian, "which seems to be older, more prestigious and more widely spoken". This evidently overlooks the other 5 recorded Anatolian languages (Carian, Lycian, Lydian, Pisidian and Sidetic) and probably other unrecorded ones.

One might as well argue that the Baltic languages couldn't possibly have been on the Baltic for 4,000 years, but this overlooks the fact that a) there is another extinct Western branch of Baltic with 4 members and probably 3 more Eastern Baltic languages and b) Baltic languages are very conservative – i.e. precisely that: they were slow to differentiate into daughter languages.

Anthony has the Anatolians moving from the Pontic Steppes into the lower Danube Valley and perhaps to the Balkans about 4200-4000 BCE and possibly reaching Troy around 3000 BCE. This is nevertheless problematic since we find a

[31] Cf. Francisco Villar, Vascos, Celtas e Indoeuropeos, Ch. 7 and 8, E.U. Salamanca, 2005. The stock response is to dismiss the hydronymic evidence of Krahe et al. and talk up the alternative Vascoid explanations by Vennemann, although 2 serious articles by Lakarra and Kitson have shown Vennemann's work to be seriously defective. Furthermore, not even the most ardent Vascologists claim that Basque was ever spoken in Andalusia. Kitson, British and European River Names, Trans. Phil. Soc., Vol. 94:2 (1996) 73-118. Lakarra cited in the review by H. Sheynin, Linguist 15. 1878.

[32] I use the data from A. Vovin, Some Notes on Linguistic Comparison, in Shevoroshkin & Sidwell, Historical Linguistics & Lexicostatics, Melbourne 1999, with corrections on the basis of Starostin's database.

Luwian substrate in Greek toponyms detectable in the *–ss-* and *–nd-* suffixes[33] South of Mount Pindos, but not North of it,[34] i.e. a North-South linguistic boundary, which is not what we would expect of a people moving down the Balkans.

Furthermore, it really isn't clear why Hurrian is older than Hittite because the latter borrows from the former. Is French older than English because English borrowed its culinary/diplomatic/legal vocabulary? Or is Japanese younger than English because of extensive borrowings like *huraidu chikin* or *sarariman*? It is probable that the Hittites were initially poor relations in a centre-periphery economic system centered on the Mesopotamia-Caucasus axis which ran all the way to Maikop, but this says nothing about the age of their language, merely that they were lagging behind their neighbors in technological/political terms.

But what is really remarkable is the shoddiness of Anthony's analysis of his wheel/wagon vocabulary, which Ringe describes as "incontrovertible linguistic evidence" for a homeland on the Pontic Steppes.

> So *k^{w}ék^{w}los* is not just a random stream of phonemes reconstructed from cognates for wheel; it meant "the thing that turns." This not only tends to confirm the meaning "wheel" rather than "circle" or "vehicle" but it also indicates that the speakers of Indo-European made up their own words for wheels. If they learned about the invention of the wheel from others, they did not adopt the foreign name for it.[35]

Actually, *ker-/kel-* (round, roll) is an extremely widespread root, present in Kartvelian, *kwer-*, Altaic *k`ulo-*, Uralic, *kulke-* and evidently in the Semitic roots *gl, glgl etc.*. The meaning may have diverged somewhat, so that it means 'to roll' in Altaic but 'move, walk' in Uralic, but Anthony is presumably happy with this degree of semantic latitude, since he accepts Buck's suggestion that **rot-eh$_2$* derives from **reth-* (run), which is also cognate with Semitic: Hebrew *ratsa* (he ran), Akkadian *rēṣu* (run to someone's aid).

Remarkably, there's not a word in Anthony about these non-IE connections, particularly the Semitic ones. It is hard to believe he wrote a book on the prehistory of the wheel, cited Gamkrelidze and Ivanov, probably the key Russian language work on Indo-European, in his bibliography, and yet failed to mention their entry on the etymology of the wheel, which states: "Hebrew. *gilgal*, *galgal* 'wheel', Aramaic *galgal* 'wheel' (cf. Georgian *gorgal-* 'wheel, circle', Sumerian *gigir* 'war chariot'). The phonological similarity of the Semitic and Indo-European forms is striking. Sumerian *gigir* is phonetically not far removed from these forms, which points to historical lexical connections to be discussed below."[36]

Anthony even claims that: "The only branch that might not contain a convincing wheeled-vehicle vocabulary is Anatolian" – when the next footnote in Gamkrelidze and Ivanov states: "The Hittite word for 'wagon' is concealed behind the Sumerogram ^{GIŠ}GIGIR-ya". Note also the entry in Black's Akkadian dictionary "Akkadian *ḫulukannum/ḫilukannum* (a kind of vehicle) < Hittite?"[37]. It's not clear to

[33] L. R. Palmer, The Greek Language, p.11
[34] *Vladimir Georgiev,* The genesis of the Balkan Peoples (The Slavonic and East European Review 44. no. 103. 1960. pp. 285-297).
[35] Anthony, ibid., p. 34
[36] T. V. Gamkrelidze and V. Ivanov, Indo-European and the Indo-Europeans, p. 622, footnotes 32 and 33.
[37] Black, J., A Concise Dictionary of Akkadian

me whether Hittite has borrowed from Akkadian or vice-versa, since the Akkadian *ḫ-* could have developed from *k-*, but the connection is there.

Anthony evidently downplays the link to Mesopotamia, claiming that the wheel could have been invented anywhere, but this overlooks the obvious point that the slow potter's wheel (tournette) had been invented there (also a thing that goes round), possibly before the end of the 6th millennium during the Samarra culture and certainly by the Ubaid culture of the mid-5th millennium, i.e. at least 1,000 years before the first carts rolled onto the Pontic steppes in the mid to late 4th millennium. And the Georgian form *gorgal* is so close to the Semitic that it strongly suggests that proto-Georgian speakers were on the trade route through to Maikop.

But it seems to be a point of honor for him to ignore all the non-IE evidence. Presumably he believes that if *kuklos, hwel, kolo, čakra, etc.* are just borrowings from Semitic into differentiated daughter languages, then the sacred notion of a PIE people with a wheel will collapse.

So Anthony insists that:

> The wagon vocabulary cannot have been created after PIE was dead and the daughter languages differentiated. The wagon/wheel terms do not contain the sounds that would be expected had they been created in a later daughter language and then borrowed into the others, whereas they do contain the sounds predicted if they were inherited into the daughter branches from PIE. The PIE origin of the wagon vocabulary cannot be rejected, as it consists of at least 5 classic reconstructions. If they are in fact false, then the core methods of comparative linguistics, those that determine "genetic" relatedness, would be so unreliable as to be useless and the question of Indo-European origins would be moot.[38]

He then states that *k^{w}el-* is unlikely to have been chosen at random several times, and that their PIE pronunciations could not have been frozen.

Of course, the above argument is entirely flawed since it overlooks the possibility of calque formation. Any artifact, institution, etc. which is introduced into a culture would probably have been done by bilingual speakers with an interest in trading or spreading it, and hence, in every case, you can imagine the conversation: "What's this?", "Oh, it's all the rage in Sumeria/Egypt/etc., it's called a !@#$%^&* and can be yours for just a few goats", "Oh dear! I can't pronounce that at all. What does the name mean?", "It means "thing that does X!"", "Ah, I see, I like the sound of that, I'll take 3 of them".

Evidently, the phrase 'thing that does X' was utterable long before the item in question appeared, and every daughter language will contain the phrase 'thing that does X', regardless of whether it is applied to a piece of technology. And as we have seen, the meaning of 'thing that goes round' is open-ended, so there may have been a word **k^{w}ek^{w}los*, but it might not have meant 'wagon wheel' – it could have meant 'potter's wheel' or 'skull' or 'testicle'[39] or pretty much anything which rolls around. Furthermore, it would have changed phonetically over time in each of the daughter languages, so it is not joined at the hip to a particular meaning and Anthony's objection that the pronunciation can't be frozen is irrelevant.

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[38] Anthony, *ibid.*, p. 77-78.

[39] *kol-* actually is a widespread root for 'testicle' – cf. Latin *cūleo*, Greek *koleos*, Finnish *kulli*, Amharic *kuala-t*, Nama *kara-*

Indeed, to argue that **k^{w}ek^{w}los* did exist and definitely meant 'wheel' is to be fooled into believing that backward phonetic convergence to a point in the past necessarily implies semantic convergence to the same point. By this argument, we can construct a Nostratic word for 'wheel' or a proto-Germanic word for 'broadband', **braiđazbanđan,* from the daughter forms which show the regular phonological changes *broadband/Breitband/brede bånd/brede band/bredband.*

And of course, Anthony's point that you have to assume an unfeasibly high degree of 'message discipline' if you reject the idea of an inherited word, is overblown, since we have reduplication in Greek, and borrowing of a second root in Celtic/Italic/Germanic/Baltic. This diversity no doubt reflects multiple points of contact so that there is no particularly good reason for assuming a single origin for a putative PIE word. Indeed, this isn't even what the data says, since we have the single forms *kólo/hwel* which are cognate with Greek *pólos*, not *kúklos*.

There are many more criticisms that could be leveled at his book, most salient of which is his complete failure to even mention the possibility that his Kurgan speakers are anything other than Indo-European speakers (the word Altaic doesn't even appear in the book), although a full critique of his theory would require an article in itself.

Since I have rejected the postulate of a constant rate of growth, it would be intellectually dishonest to announce a likely true time depth and I prefer to pursue a Sherlock Holmes style approach of rejecting what is impossible and accepting what is left, no matter how implausible it may appear.

The next theory back is evidently Renfrew's theory which identifies the Indo-Europeans with Anatolian farmers arriving in Europe in the 7th millennium and is a priori much more plausible, not least because of the demographics: around 3000 BCE, there were probably 50,000-100,000 people in the core Kurgan areas and 2 million people in Europe. Before the Neolithic revolution, say in 6000 BCE, there would have been 400,000 people in Europe and 200,000 people in Turkey, some of whom had already been farming in some shape or form for millennia. Evidently, there is a huge difference in the population ratios: 20-40:1 in the case of the Kurgan people, but only 2:1 for the farmers.

This theory in its original form (i.e. that no Indo-European languages were spoken in Europe before the advent of the farmers) nevertheless founders on the mitochondrial DNA/y-chromosome DNA evidence, which shows that the vast majority of the population of Europe is of pre-Neolithic origin. I.e. while the Anatolian farmers probably did have the numbers to displace the natives, they appear not to have attempted to do so except in piecemeal fashion. And the ancient mtDNA evidence which shows the disappearance of apparently non-indigenous haplotypes[40] has reinforced this view.

Furthermore, in the light of conservative lexical replacement rates, I believe that since the spread of the Neolithic was uneven and may not have reached peripheral areas such as the coast of Norway, until the 2nd millennium, it would still be possible to detect the effect of non-IE substrate languages in some places. After all, Munda and Dravidian words are easily detectable in the Rg-Veda. The lack of plausible evidence for non-IE languages, especially in Northern Europe, continues to weigh against Renfrew's theory and point to an even earlier entry, although it may well be the case

[40] W. Haak & P. Forster et al., Ancient DNA from the First European Farmers in 7500-Year-Old Neolithic Sites. Science, Vol. 310, No. 5750, pp. 1016-18.

that he is right about the incoming farmers being Indo-European speakers, in which case, their entry would represent the intrusion of Indo-European speakers into a region already occupied by Indo-European speakers with some resulting convergence. It goes without saying that glottochronological models are unlikely to tell us anything useful about such a complex process, but hard linguistic analysis hopefully will.

MOTHER TONGUE
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Introduction To Milyan

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Milyan and Lycian are closely related Late Anatolian languages of the Luwian subgroup, spoken in Western Asia Minor. Milyan is represented by two inscriptions on stone: 55 from Wesñte-Phellos, and 44 (which also contains non-identical Lycian & Greek texts) from Arñna-Xanthos, capital of Lycia (the inscription numbers refer to the old Corpus of Lycian inscriptions; the number of Lycian inscriptions mostly very short, is close to 400). Both inscriptions come from the 4th century B.C., but the former is linguistically more archaic; it is also chronologically older since it clearly served as a prototype for the latter inscription which glorifies the Lycian high commander, Xerẽi. Xerẽi became ruler of Lycia after death of Xeriga (apparently Xerẽi's elder brother). Xerẽi's name appears only in the Lycian part of 44; in the Milyan part, he is mentioned as Ñtuwitẽni ('Supervisor'?), Ẽnari ('Mighty'), and Zrẽteni ('Protector'); on many occasians, Ẋerẽi speaks (in the Milyan part of 44) in the 1st person.

Both the Milyan and Lycian texts are written in alphabetic scripts, somewhat similar to Greek; there are also other relatively similar alphabets used in Late Anatolian inscriptions: Lydian, Carian, Sidetic. Along with the Cuneiform Anatolian languages Hittite, Luwian, and Palaic, as well as Hieroglyphic Luwian, Late Anatolian languages reflect an almost 4 millennia long linguistic history of Anatolian, or Hittite-Luwian languages of the Indo-European language family.

The Milyan language preserved IE **s* as *s*, whereas Lycian changed it into *h* in most positions (*s* is preserved in both languages before **t* and **p*); Milyan had no *h*, so it lost Lyc *h* in a few borrowings from Lycian (e.g., Mil *uwedri-* 'all' < Lyc *huwedri-* id.). Milyan also borrowed some grammatical elements from Lycian, such as acc. pl. ending *-s* (from **-nts* <**-ns*); genuine Milyan ending is *-z* (after nasal vowels, re-flecting the underlying **n*). Milyan shows voicing of *s* into *z* before *r* (Lycian shows *h*).

Like most other Anat languages, Mil and Lyc languages preserve Anat "laryngeals": [x]-(*x*; *-g-*) and [x^w]-type (*q*; *G* = [γ^w]) fricatives, either fully lost in other IE languages, or preserved only in traces (as, apparently, in Armenian and Germanic); note that one of late Anat languages, Lydian, has lost IE-Anat laryngeals as well. Anatolian (=Eastern IE) languages were the first to split from the IE branch of languages: this is illustrated not only by the loss of laryngeals in Western IE languages, but also by the fact that Anat languages did not develop the feminine category in grammar. Such facts explain why IE languages are frequently called Indo-Hittite (E.

Sturtevant's term): they consist of two sub-branches, the archaic Hittite(-Luwian) and 'other' Indo(-European).

It is not easy to interpret Milyan inscriptions: there are many Mil words which are lacking in Lyc inscriptions; nominal and verbal endings are frequently ambiguous: for instance, *-di* may be either ablative-instrumental ending or verbal (3rd p. sg. pres.-future); *-e* may be ending of d.-l. sg. or pl. or that of n. sg., etc. Nevertheless, Mil research is slowly progressing, so that today we can propose a preliminary interpretation of the vast majority of Mil passages, as well as at least approximate translations of most Mil words. Thanks to D. Schürr it is now possible to read many damaged Mil letters with much more precision than just a few years ago. There are many papers on Milyan; among other editions, one of the most important is H.C.Melchert's new version of his *Dictionary of Lycian Language* (DLL) with a special section, covering most Mil words (listing appropriate grammatical forms in different Mil inscriptions).

What follows is an interpretation of almost all passages of 44c (Mil text starts with c32), of a considerable part of 44d, and of the whole inscription 55. A preliminary analysis of appropriate Mil words and word combinations (in comparison with related forms in other languages) is present in the word list at the end of this paper.

I. INTERPRETATIONS OF MILYAN INSCRIPTIONS

1. THE BEGINNING OF THE MILYAN TEXT OF 44 (44c32-41)

In the 1st Mil strophe of 44, god Natri-Apollo honors (*sla-ti*) with libations (instr. *saba-di*) both Lyc. troops / men and the Ruler [coming] from 'prompting / rushing' (abl. *xustte-di*), and then arranges (*zaza-ti*) the *laGra* (vessels? stands?) (acc.) for a victory?-celebration (d. sg. *trujel-i*). - In the 2nd strophe, the Storm-god (Trqqiz) brings / gathers (*xba-ti*) the warriors (acc. pl. *qetbeleimi-s*) to / at *zppli*-stand (altar?) for a feast (d. sg. *xi*; cf. Lyc), and the *iketesi*-manager? [brings / provides] all the supplies (acc. pl. *uwedri-s ... erẽpli-z*); then he (Trqqiz?) presents *leli* (acc. sg., 'speech' or 'stele' ?) to the divine assembly (d. sg. *masas-i : tulijew-i*):

44c32-4 (I) *sbirte : me zi-(e)reima : sabadi : mrGGdi-pe : sebe : pasbã natri : slati : xusttedi : sebe xñtabu* 'For contributions (d. *sbirt-e*), during levy / at delivery-stores (d.-l. *zireim-a* ?), Natri with *Margwaya*-gods (instr. *mrGG-di*) honors (*sla-ti*) with libations both the troops / men and the Ruler [coming] from 'prompting / rushing' [or: from raids ??] (abl. *xustte-di* of *xustti-*)';

(II) *sebe ñte laGra : trujeli : zazati nbb* 'And then (*ñte*) (he) arranges / provides the *laGra* (vessels? stands?) for *trujeli*-feast properly (? *nbb*)' (?).

44c34-6 (I) *trqqiz-kke-pe : me-de zppli : xi xbati : qetbeleimis : s(e) iketesi : uwedris erẽpliz* 'And Trqqiz ... brings to the altar[?] [or: 'gathers at the altar' ?], for *xi*-feast, the warriors (acc. pl. *qetbe-leimi-s* 'unvulnerable ones', lit. 'assault-free' ??), and the Manager[?] [brings / provides / arranges] all the supplies (acc. pl. *uwedri-s erẽpli-z*)',

(II) *sebe leli : pinati : masasi : tulijewi* 'And he presents (*pina-ti*) a speech / the Stele (acc. sg. *leli*) to the divine assembly (d. sg. *masas-i : tulijew-i*)'.

Then Lyc ruler Xeriga 'arranges the *laGra*' for a grand feast for Lycians; this seems to happen at a place used for 'blood-offerings / sacrifices'.

44c37-9 *laGra : trbbdi : xeriga : me xbadiz : kudi : mrGGd[i : [saba]kssa : trm̃milija : uweti padmruwasa : kup<r>lle[si ... :] sebe : xbadasi : esãnã-mla* 'Xeriga provides (*trbb-di*) the vessels / stands[?] (acc. *laGra*) now when (he), along with the *m.*-gods, toasts (? *uwe-ti*) the Lycians during Lycian drink-abundant[?] give-away treats / handouts (*[saba]kss-a ... pad(a)-mruwas-a*) at / during the 'blood-sacrifice' (*esãnã-mla*, DLL 115) of the Kuprlle-kin (= royalty) and the Lycians'.

[Altern.: Xeriga announces (*uweti*) the .... feast (acc.)' + voc. pl. *xbadiz* 'Lycians!' (= 'valley-people' < 'vallies', HrL *hapada*, etc.) // It is not quite clear if the *m.-gods* are 'givers', and not 'recivers'; cf. *mrGGas* (acc. pl.) *uwẽti* in 44c41-4; see below].

Next, Tupleleimi (possibly, Natri; but Xerẽi is not excluded) appears as a main character (44c39-41); in the subsequent strophe, the main actor seems to be Xerẽi, addressed as *xñtabaimi* 'Royal one' [which might indicate that he is not a Ruler yet]:

44c39-41 (I) *ebi-n-ube kere : seb[edi-pe[?] k]udi : slãmati : zrbblã* 'The Local one (?? *ebi*) specifies (*sebe-di*), for (/during?) grantings / dedications (d.-l pl. *ub-e*) in districts (d.-l. pl. *ker-e*), when one adds (*slãma-ti*) *zrbbla-* ('booty' or 'increase' ?) [to *laGra-*]'.

(II) *m̃qrẽ : muri : tupleleimi [.... an]az : sebe sbirtẽ pzziti : lelebedi : xñtabasi* 'The Invulnerable[?]-one determines (*pzzi-ti*), for *muri*-rite, the treats (acc. pl. */ana-z/*) of rations (g. pl. *m̃qr-ẽ*) [for people?] and the Ruler's share (acc. sg. *sbirtẽ*) from spoils / takes (abl. *lelebe-di*)'.

44c41-4 (I) *[.....]-pe : ni-ke : waxsi : pibi : krese : (a)rm̃pali : predi : xapaxi : l[ax]adi : mrGGas uwẽti* 'Don't give [treats?] to warrior(s) (d. sg. *waxs-i*) in the army (d. sg. *kres-e*) [coming] from raids, from fights (*predi ... laxadi*), when libating (gerund *uwẽti*) the *mrGGas* (acc. pl.: gods *Margwayas* / Luw *Marwainzi*; expected Mil *mrGGãz**) during (d.-l. sg. *(a)rm̃pal-i*) the divine *xapaxi*-feast (?)!' [*xapa-xi* as Lyc *uwadra-xi* ?]

(II) *sebe (e)nẽ : laGri : xñtabaimi : slãma zrbblã* 'And add *zrbbla-* (spoils? / 'increase'?) to vessel(s) / stand(s) (d. sg. *laGr-i*), Royal one!'.

An attack comes (next), and Xerẽi becomes active as a military leader.

2. SUDDEN ATTACK ON LYCIAN SUPPLIES IN THE CAPITAL (44c44-6). - WAR WITH AMORGES (44c46-51). - XERẼI'S YEARS OF WARS / RAIDS (44c51-4)

It seems a celebration is suddenly interrupted by an enemy attack:

44c44-5 (I) *me uwe kemijedi : waxsadi : zrqqiti : zireime{me}di : xbadasadi* 'Now ... (one) is robbing / looting (*zrqqi-ti*) with aggressive / pushing? (instr. *kemije-di*) warriors (instr. *waxsa-di*) [or: with strikes??] from Lycian (instr. *xbadasa-di*) levy-supplies (instr. *zireime-di*)'.

(II) *kudi mawate : klleima : wijedri : ñtuwitẽni : pduradi : sebe* 'Where (one) had removed tribute / payments (acc. *klleima*), Ñtuwitẽni(-Xerẽi) brings (*pdura-di*) both the command (acc. sg. coll. *wijedri*) and the troops (*pasbã*)'. [Altern.: 'Where he (=Xerẽi) has removed (= recovered) tribute / payments (acc. *klleima*) ...]

What comes next is a description of gods (Kaunian Natri and Turaxssan Natri), helping Xerẽi in wars, -- at least, the one with Amorges (44c46-8); then comes a celebration which follows Lycian victory over Amorges (44c49-51):

44c46-8 (I) *ñte ne puketi : xbidewñni : ulaxadi : zrẽtẽni* 'Then (? *ñte*) the Kaunian [Natri-Apollo] doesn't threaten (?? *ne puke-ti*) the Protector(-Xerẽi, acc. *zrẽtẽni*) with fight(s) (instr. *ulaxa-di*)'

(II) *seb(e) ẽnari : kupriti : turaxssali : natri ti mlu mawate : waxsadi : wizttasppazñ* 'And the Turaxssan Natri favors (*kupri-ti*) the Mighty one (acc. *ẽnari* = Xerẽi), who remuwed (*mawa-te*) with war(rior)s (*waxsa-di*)' W.'s pledge (acc. sg. *mlu* to n. *mlu*).

44c49-51 (I) *ẽke (e)bei xustite* (sg. or pl.?) *umrggazñ : klleimedi : sbirtẽ : xbadiz* 'When / after (he = *ẽnari*, Xerẽi ?) rushed to him (i.e., to Xeriga) Amorges's amends / contribution(s) (acc. sg. *sbirtẽ*) with payments (instr. *klleime-di*) [or 'interest from payments' ?], Lycians! (voc. pl.)' [altern.: *xbadi-z* 'Lycians' = subj.; vb. [xustĩte]]

(II) *tuwi-pe (e)ne : padrete : xẽriga : waxsa : murei : sebe zrigali : nei talã* 'Xeriga presented (*padre-te*) to warriors (d. or all. *waxs-a*) this (acc. sg. *ene*), the *muri*-related feast (acc. *murei* [=attr. to *tuwi* 'feast, rite', or sim.]), and a purification[?] rite (acc. *nei* [=attr. to *talã*] + noun *talã*) for / during a split-up (d.-l. sg. *zrigal-i*) [of spoils]'.

Next the Protector (Xerẽi) is being shown as fighting wars / going for raids into the battlefield 'thrice twelve times', which may be several years; this is time enough for him to become Lyc. ruler and replace (the deceased) Xeriga, his elder brother:

44c51-3 (I) *se-de keri trsu : qñnãtbisu : prete : laxadi : zrẽtẽni* 'And then (*-de*) to the field (d. sg. *ker-i*) the Protector (Xerẽi) was gallopping (*pre-te*) thrice twelve times with strikes / fights (instr. *laxad-di*)',

(II) *seb(e) ebe qirzẽ : uta-kija trm̃miliz : tbiplẽ : trpplẽ : tuburiz : pduradi : xuzruwẽtiz* 'And he brings (*pdura-di*) the Lucians (=warriors) for payments(-for-delivery) / annual awards (d. or all. *uta-kija*) of double shares (gen. pl. *qirzẽ tbiplẽ*), and the agile (?) Tuburans (Lycian closest allies) [for payments] of triple shares'.

3. LYCIAN RULER XERẼI'S FIRST LYCIA JOURNEY (at least 44c54-8)

Xerẽi (as once did Hittite kings) made journeys through Lycian cities where he celebrated certain events, wined and dined authorities and other people for their achievements (including crop delivery), etc. (This is, of course, comparable with Hittite kings' traveling through the Hittite empire). It seems that 44c54-58 (two strophes) describe the first journey, covering cities Xãzbi()Tuminesi [= Xandyba (and) Tymnessos, Hñtawa (Lyc. spelling), Kridesi (Lyc Kerθθi), Dewe (?), Pirli (Aperlai); the 2nd journey (below) covers at least two of the above cities (Pirli - Aperlai [represented by adj. *prlleli*] and Sãtawa00 [= Hñtawa ?]) plus Tralles / Busa and Lyc. nymphads near Xanthos.

44c54-6 (I) *xãzbi : tuminesi : hñtawã : kridesi : sebedi : qirzẽ : ziwi* 'He specifies / earmarks (*sebe-di*) [the cities] Xãzbi()Tuminesi, Hñtawa [and] Kridesi for delivery / granting(s) / allotment (d. sg. *ziw-i*) of shares (g. pl. *qirzẽ*)'. [DS: Xã<t>bi]

(II) *dewis : asa : muwati : zrẽtẽniz* '(He) strengthens [= libates?] the Dewe-inhabitants, the protectors (= local commanders / administrators), for stability / continuity / order',

(III) *ali : muwi lade : epñ-tadi sebe : passbã* '(He) took (*la-de*) for 'strengthen-ing' (d. sg. *muw-i*, libation?; cf. *muw-a*) both the [military] authority / nobility (acc. sg. coll. *ali*) and the troops / people (*passbã*)'.

Now comes Pirli-Aperlai:

44c56-8 (I) *ne pe ki wisiu utetu ñtelija* 'I don't impose (*ne wisi-u*) any / whatever (acc. sg. pron. *ki*) levy / delivery-payment (acc. sg. *utet-u* to n. sg. compound *uteta* < *u-te-ta* ?) on the 'Internal ones' (d. or all. *ñtelija*, DLL 123);

(II) *pidritẽni : pirli : murẽnedi : tuburiz : upleziz : s(e) iketesi : arppaxusẽti : tm̃pewẽti* 'The Provider is treating (*mur-ẽne-di*) in Aperlai (l. sg. *pir-li*) the ... Tuburans, and the Manager? [is treating] the detachment / people (? *tm̃pewẽti*) of Arppaxu (= Lycian warriors ?)'.

* * *

A 3-strophe conclusion (which also ends 44c) seems to follow; a threat is made to those who would dare to attack the celebrating Lycians:

44c58-60 (I) *ki-be uwe neu : psseje : qidridi : laxadi : zirẽple* 'No one dashes (*qidri-di*) with strike(s) (*laxa-di*) toward levy-related (adj. *psseje*, attr. to *z.* ?) provision-supplies (*zi-(e)rẽpl-e*)'

(II) *me d(e) erẽple : xradi : waxsa : truiele : m(e) ẽmi : mawili* 'Now then, my enforcer? (*mawili*) keeps (*hra-di*) warriors (acc. coll. *waxsa*) at the supplies / supply-stores (l. pl. *erẽpl-e*) during victory? feasts (*truijel-e*)'

(III) *klleimedi : alGã na lax<a>* 'I didn't take (*na /la-xa/* for */ne laxa/*) profit (acc. sg. *alGã*) from payments (abl. *klleime-di*)'. [Quasi-synonyms: *klleimedi alGã* 'profit? from payments' : *klleimedi sbirtẽ* 'contribution [or 'interest, profit' ??] from payments').

44c63-4 <u>*wixsaba*</u> <u>*laba*</u> *: me tm̃me xbade : lẽm̃* [= */lẽme/*]*-pe : tunewñni : seb(e) erẽpli : sabaka :* <u>*qetbeleima*</u> 'Tunewñni used to bring <u>military</u> <u>spoils</u> to taken (*lẽme*) weapons (*tm̃me*) [or: to other trophies ??], and [he used to bring] <u>the warriors</u> (<u>*qetbeleima*</u>) for libations (*sabaka*) to supply / store (*erẽpli*)'.

[Altern. (less probable): acc. <u>*sabaka*</u> *:* <u>*qetbeleima*</u> 'libation-oriented / celebrating?? warriors' (?). Cf. the matching variant <u>*kuli*</u> ... <u>*mruwasi*</u> in 55; see below. - This latter sentence is very

similar to that in 44c34-6 where Trqqiz brings to the *zppli*-altar the warriors (*qetbeleimis*), and *iketesi*-manager[?] [brings there] all the supplies (*uwedris erẽpliz*)' // Vb. (sic!) *murẽne-* 'treat'[?] (built like *qelẽne-* 'accumulate') relates to d. sg. *mur-i* 'for a feast / libation', or sim., cf. related adj. in acc. sg. *murei*, attr. to *tuwi* 'feast, rite'; cf. Luw *mura/i-*, adj. to 'rite'.

In a very similar construction in 55.4 (see below), noun *tidñt-a* 'for libation(s)' practically requires a synonym in 44c34-6, which could only be *sabak-a*; indeed, this latter relates to *saba-* 'libation, drink' in instr. *saba-di*; cf. also adj. *[saba]kss-a* (< */sabakasa/*), attr. to *pad(a)-mruwas-a* 'at the give-out feast'; note *mruwasi* above.

We may note that *xbade ... erẽpli* (d.) *: sabaka* (d.) *: detbeleima* (acc.) 'brought the command to supply for libation(s)' (44c) may match precisely not only *kuli* (acc.) ... *mruwasi* (d.!) *tidñta : xbade* 'brought the troops to feast(-place?) for libation(s)' (55), but also 44c59 *erẽple* (d. pl.) *: xradi : waxsa* (acc.) *: truijele* (d. pl.) '(he) keeps warriors at the supplies during victory[?]-feasts [for protection]' (: d. sg. *trujeli*, 44c34), as well as 44c34-5 *zppli* (d.) *: xi* (d.) *xbati : qetbeleimis* (acc. pl.; note acc. coll. *qetbeleima* above) '(Trqqiz) brings the warriors to the offering-place (*z.*) for *xi*-feast' where *xi* relates to Lyc-Mil verb *xi(s)-* 'offer (repeatedly)' (about animal-sacrifices; cf. Lyc *uwadra-xi* and
Mil *xapa-xi*)].

4. FIRST, COMPLETION OF QUOTA-DELIVERIES BY TAXPAYERS; THEN, A LIBATION AND A MAJOR FEAST (44d23-37)

The next passage represents only a part of the appropriate strophe:

44d23-4 *[m]e-j-epñ tere kere : sxxaija kuti : pssat[i] zajala : me te ne mrsxxati : urtuwãz : mar[ãz]* 'Now, if later (*epñ*) the tax-payer[?] (n. sg. *zaj-ala*; cf. acc. sg. *[z]aja* 'levy, tribute', 55) in the districts (l. pl. *ker-e*), at *t.*-stands / altars[?] (l. pl. *ter-e*), pays / gives regularly (*pssa-ti*, iter.) for fill-up (? *sxxaija*, syn. */sxxaxa/*, 55), now here (*me te*) he doesn't violate (*ne mrsxxa-ti*) the quota laws / rules (acc. pl. *u. m.*)'.
[Cf. acc. sg. *urttu mrsxxã* 'quota / tax cheater' where god Trqqiz appears as a punisher].

The following text consists of the end of the preceding strophe (our pt. I) and the 1st part of the next strophe (our pts II-III):

44d25-7 (I) *trm̃mile -be te keri : trei xali pise xup[di]* 'Heap up / gather here (*te*), for / during 3 days (? d.-l sg. *tr-ei xal-i*), the district-people (acc. sg. coll. *keri*) during Lycian (tribute-)payings (l. pl. *trm̃mil-e ... pis-e*) !'

(II) *qrbbli : me ije (a)lbãma : pssesi : slama* 'Now, add (imp. *slãma*) the *albãma*-drink / libation to tribute-related (d. sg. *psses-i*) goblet(s)!'

(III) *ker[i] lẽpri -j- asxxa* 'Make permanent (imp. *as-xx-a*) time / schedule (acc. sg. *lẽpr-i* to Ht *lammar*; cf. *m̃qr-i* : *mẽhur*) in / for *keri*-district(s)!'

The next part of the above strophe represents the beginning of a narrative (actually, an instruction) about offerings / feasts:

44d27-9 (I) *muni : trbbdi : tasñt(u) uwadi : mẽmrezñ* 'Now, Muni provides (/ shall provide, *trbb-di*) Mẽmre's *tasñta*-device / stand (= Lyc *tahñta*-) [for *tuwi*-feast/rite]',
(II) *trppali : me tu neu prijelijed[i] ki-be meredi* 'Apply (imp. *tu*) whatever / any (acc. sg. *ki*) change / deviation (*trppali*) [but] not from (= of) the laws (abl. *mere-di*) of nobility / first ones (abl. *prijelije-di*) !'.

The above narrative is interrupted by a strophe which consists of two prohibitive sentences (*ni-k(e) ... ni-ke ...*): it is about sudden coming of Tuburans from raids; accordingly, Ñtuwitẽni(-Xerẽi) arranges the warriors for a split-up [of spoils] (?):

44d31-2 (I) *ni-k(e) m̃qrimiz ñtuwitẽni : uplesiz : waxssadi : tubu<r>iz ẽke-d(e) epñ : predi : zazati : zriqali* 'And also (there shall be) no rationing / distribution (n. pl. *m̃qrimi-z*) when (*ẽke*) later Ñtuwitẽni (= Xerẽi ?) arranges (*zaza-ti*) the ... Tuburans, [who came] from attacks [and] from fights, for a split-up (d. sg. *zriqal-i*)'

(II) *ni-ke dezi : mutala : apñtadi : tetbeti : laGra* 'And (there shall be) no libation (?) (n. sg. *de-zi*) [because] a clumsy one (*mutala*) may break (*titbe-ti*), through a repeat-delivery (instr. *apñ-ta-di*), the offering stands (*laGra*)'.

In the next strophe all is back to normal; the instruction for feast goes on:

44d34-7 (I) *me muni : trbbdi : tuwi : uwadra* 'Now, Muni provides / delivers (*trbb-di*) bovines (acc. coll. *uwadra*, cf. Lyc) for the *tuwi*-feast / rite'

(II) *me tu -pe (e)ne tesẽni : qñza : prijelija* 'Now, use (imp. *tu*) this (acc. sg. *ene*), the incantation[?] / oath[?] (*tesẽni*), for / during the feast (*qñz-a*) for the nobility (d. or all. *prijelija*)!'

(III) *me -de tu xezm̃* (= */qezm̃ma/* ??) *xbadasa* 'Now, also (*-de* ?) use [it ?], for feast (?), for Lycians / commoners! (adj. *xbadas-a*; cf. *qñza prijelija*)';

(IV) *alasi (e)d(e) adu -pe : sebe pasbasi : esẽnẽ-mla* 'Let (one) make (imp. 3rd p. sg. *a-du*) it (acc. neut. */ede/*) during / at [the place of] the blood-offering (d. sg. *esẽnẽ-ml-a*) of (=for) the nobility (adj. d. sg. *alas-i*) and of the people/troops (adj. d. sg. *pasbas-i*)!'.

[See below, about the feast preparation during Xerẽi's journey to Tralles].

The above passage is followed by the description of Xerẽi's 2nd Lycia journey.

5. XERẼI'S SECOND LYCIA JOURNEY

The first log of the journey is Tralles (/Busa ?), then come Aperlai, Sãtawa* / Hñtawa (?), and thy nymphads (*lijenuwez*) near Xanthos:

44d37-40 (I) *plejerẽ : pijeti : ilẽne : qezm̃mi* 'The nobility (n. sg. coll. *ilẽne*) gives a *plejere*-stand (??) for the *qezm̃mi*-feast [= lit. 'killing']'.

(II) *me kedi (i)je : qelideli : albã-pe : kupttle : muxssa : pijelu* 'Now, through [=because of?] which (*kedi*), I'll give (*pije-lu*) a harvest?-related (attr. *qel-id-eli*) libation (acc. sg. *albã*) to the cooks? (d. pl. *kup-ttl-e*) during the *muxssa*-incantation?'

(III) *mlez : ñte()mlesi : mire : lide-be : (a)lbijẽi : trelewñne* 'The libation priest (n. sg. *(a)lbijẽi*) of the sacrificial installation (= Lyc *ñtẽmle*-) [or: during the rite] released (? *li-de*), for the Trallian commoners (d. pl. *ẽtr-e*, lit. 'lower ones', cf. Lyc), the feasts / treats (acc. pl. *mlez*)'

44d41-4 (I) *xñtabu-pe : kñtre : eluwi-pe : busawwñn[a : a]la* 'I('ll) libate (*elu-wi*) the leader / administrator for crops (? *kñtr-e*) before Busan nobility / noblemen (*/al-a/*)' [*eluwi* is a verb of the 1st sg. pres.; *'eluu'* is impossible]

(II) *tralije : wijedri-be : albaxã : m̃qr[e*(?) *: er]eime* 'I libated the officials (acc. sg. coll. *wijedri*) for allotments (d. pl. */m̃qr-e/* ?) at Trallian supplies / during Trallian levy (l. pl. *ereim-e*)'

(III) *mulẽni-pe : zppli : ẽtre-be : asx[xat]i a[t]rala mu<w>a* 'The retainer / attendant? will make permanent (*/asxxa-ti/*) *mulẽni*-treat(s) for 'strengthening' (d. or all. */muw-a/*) for the lower ones (d. pl. *ẽtr-e*) at the altar? (d.-l. sg. *zppl-i*)'.

Next comes Aperlai:

44d44-7 (I) *xzzãtã-pe : trqqiz trm̃mile : zm̃pde eseti : xerigazñ* 'Trqqiz approved (?) (*zm̃p-de*) Xeriga's ration[?] (acc. sg. *xzzãtã*) for continuity (d. sg. *eset-i* / Lyc *ahat-a*)'

(II) *epe-qzz[i] trppalau : (e)ri-pssedi : prlleli : (e)kedi-pe* 'I'll replace /renew[?] (*trppala-u*) the repeat (? *epe-*) offering / feast of (= in) Aperlai from tribute-payments

The next passage is about Sãtawa* / Hñtawa (?):

44d47-50 (I) *[m]e sãtñniu : qñtbẽ uwaxa : mlati : wzza : ijesi* 'Now, I toasted (*uwa-xa*) the *qñtbe*-administrator[?] Of Sãtawa* (?) at the *mlata/i*-place of / during *w. i.*'

(II) *me welpumi : mrG[G]di pttili-ke : xustti-ke qidrala : ke –pe (e)n[e] ziu : sukredi : ki-be : pasbu* 'Now, reassured (n. sg. *welpu-mi*, pass. prtcple to *welpu-*) by *m.*-gods, I'll provide (1st sg. *zi-u* < *ziju**, verb *zija-**) the troops with libations / drinks (instr. *sukre-di*) for [their] swiftness / agility, and raiding(s), and prompting(s) (??)'

Next come the nymphads near Xanthos:

44d50-3 (I) *urttu : qelid[e]li : ki-be-i me-i : per(e)-epñ : (e)ne (a)stte : mlati* 'Now, [when] either here or there (?? *kibe-i me-i*), soon(er) or later (? *per(e)-epñ*), one (= they) had made / delivered this (*ene*), the whole (lit. 'whatever', *ki-*) harvest-related (? *qel-id-eli*, adj. in acc. sg.) quota / amount (*urttu*) to the *mlata/i*-place ...' (*mlat-i* matches *q(e)le-i* [or *q(e)l-ei*] 'at / during the collection (?)' in 55.8; for d.-l. *q(e)lei*, cf. grammatically identical forms *trei*, *ebei*).

(II) *xbadasiz : tuwemedi : lijen<u>wez : muwaxã : ppe-qzzi* (for *epe-qzzi*) *: ki-be : pruxssi : (e)rbbinesiz* 'I was strengthening the nymphads (acc. pl. *lijenuwe-z*) of Erbbina and of Lycians through offerings[?] (instr. *tuweme-di*), during the repeat (animal) feast(s) (l. sg. */epe-qzz-i/*) or during the purification-rite(s)[??] (l. sg. *pruxss-i*, if to *pru(w)-axx-* < *pruwa-*)'.

6. INSCRIPTION 55

55.1 *[e/ab]añn[ã] : mlu te (e)ne welputi : pixre : lijenuwi : pleliz : madrane : wirasajaja (u)t-m̃qrẽ : lijaiz* 'Pixre sets hopes (*welpu-ti*) on this (acc. sg. *ene*), this pledge (acc. sg. *abañnã mlu*), to make prosper / mature (inf. *madrane*) of delivery / annual[?] rations (*/ut-m̃qrẽ/* < d.-l. *ut-e* + g. pl. *m̃qr-ẽ*) the Phellian nymphs (acc. pl. *pleliz ... lijaiz*) among invited ones / guests[?]' (*/wirasaja/* or *wirasaja-ja*; cf. acc. pl. *warasijez*, 44d).

[Note that *(e)ne* cannot be a negation here, since *welpu-* has a 'positive' meaning (as seen in 44d); Mil *ut-e m̃qr-* may mean 'ration(ing) / timing for a year (*ut-e*)' vs Ht *witt-i mehur* 'time / period in (=of) the year (*witt-i*)'; or, rather, we have *ute* (with prefix/preverb *u-*) 'delivery' to Ht *u-da-* 'bring'. - We may add that, in 55, we deal only with one nymphad (d. sg. *lijenuw-i*) whereas in 44d we deal with several nymphads (acc. pl. *lijenuwe-z*), apparently, those near Xanthos (they are described by Xerẽi during the last leg of his 'harvest' (? *qelideli*) journey through Lycia, see above); therefore, *plluwi* in acc. sg. *plluwi mlu* (used both in 55 and 44d) cannot mean 'Phellian'; it may be 'glorious' or 'spacious' (?)].

55.1-2 *me (a/e)budi-ke : prijẽ : meri : zi-psse : kudi : s[xxa]xa : q[elei] n(e) epdi [e]l(u)-xruje s(e)* [or *[e]l(u)-xrujes(i)*] *epñnasi : sttrm̃mi : sebe : pasbã* 'And (*-ke*) now (*me*), [if someone] violates (*abu-di*), during delivery/share-payment(s) (*zi-pss-e*), the first [thing] (acc. sg. *prijẽ*) in the law (l. sg. *mer-i*) [or: the law (acc. sg. *meri*) of the foremost ones (g. pl. *prij-ẽ*], as (*kudi*) [one] doesn't take (*n(e) ep-di*) for the fill-up[?] (d. or all. *sxx-ax-a*) and (*se*) for drink-entertainment[?] (d. sg. */elu-xruj-e/* ?) of 'takes' (adj. *epñna-s-i*, attr. to */eluxrij-e/* or */eluxrijes-i/*) at / to the collection(-place) (d.-l. sg. *qel-ei*) [his] estate-people / dependents (acc. sg. coll. *sttrm̃m-i* ?) and the troops / guards (acc. sg. coll. *pasb-ã*) ...'

55.1-2 (I) *eke : pleliz : abura : m(e) ebe-i : titbeti* (or: *tirbeti*) *: zirãpla* 'Now (*me*), Phellians (voc. pl. *pleli-z*), the enforcers (n. sg. coll. *abura*) in the localities (l. pl. *ek-e*) will destroy / damage (*titbe-ti* or *tirbe-ti*) him (d. eth. *ebe-i*; 'here' is also possible) [his] delivery-supply (acc. coll. *zi-(a)rãpl-a*)';

(II) *ne lelixa nere : km̃masadi : xlusã : qereimedi* 'I didn't speak / retell (*ne leli-xa*) to water-gods (d. pl. *ner-e*) [any] quarrel(s) / brawl(s) (acc. sg. *xlusã*) from (=about) all (abl. *km̃masa-di*) the raidings / chasings (abl. *qereime-di*)'.

[This topic also appears in 55.7, see below: there we deal with Pixre's last will; *terblẽ* is used there instead of *xlusã* above. At the end of 55, we seem to deal precisely with the above mentioned feast which may take place during the crop delivery / collection (or 'at the collection-place': *qelei / qlei*). As shown by 44, it is clear that parts of the tribute goes both for offerings to gods and feasts for people.]

Next, Pixre speaks about his supplies for treats for Trqqiz (note use of all. *trqqñt-a* instead of the usual d. *trqqñt-i*). The treats' description represents a symmetric con-struction of the type 'gen. pl. – acc. – acc. – acc. – gen. pl.'

55.2-3 *ẽmu we te : qlaxa : zppli-de : kãtdqẽ* [= */kãta-q-ẽ/* ?] *: trqqñta [a]naz xlp[.]ã kibe (a)da* [or *(a)da[z]* ?] *[m̃]pa[r]ãna kuprimẽ* '[As for me,] I used to accumulate (*qla-xa*) here (*te*) at the altar? (l. sg. *zppl-i*), for Trqqiz of the Steppes (all. *trqqñt-a ... m̃parãn-a*), treats (acc. sg. *ana-z*) of wheat-dishes (? g. pl. */kãtaq-ẽ/*), the *xlp[p/r]a-*, or the meals (acc. *ada* or *ada[z]* ?) of delicacies (g. pl. *kuprim-ẽ*)'.

[Next comes an offering description. - For *sxx-ax-a*, cf. syn. *sxxaija* in 44d23 'for fiilling-up' (or sim.; not an adj.); somewhat similar in meaning is *tẽp-e*, 44d63].

55.3 (I) *me uwe me()mleje : pri-pe trija date qir{:}zẽ qabalimedi : sljtãmi* [=*/septãmi/*?] *udrñte* 'Now, for / during the offerings, first, he put / placed (*da-te*), a seven shares (acc. sg. *septãmi qirzẽ*, or acc. sg. + g. pl., *septãmi qirz-ẽ*) from a fault-less? (abl. *qaba-lime-di*) [victim] to the 'bringings' for the Triad (d. or all. *trija*) ...',

(II) *sebe kuprimesi kzta ẽ : xi[st]te -j- epñ* 'And the offering-priest (*kuprime-si*) was offering (*xi-s-tte*, iterative of *xi-*) [it] when (*ẽ*) required (? *kzta*; DS: *k<ñ>ta*)'.

[Altern.: *memleje* (or *mleje*) is adj. 'offering-related', attr. to d.-l. pl. *udrñte*]

The next passage (55.4) seems to describe Pixre's actions; the 2nd pt. is a symmetric construction (semi-identical to one in 44c which is provided right after 55.4) with this structure: acc. -- **d.-l.** -- **d.-l.** -- (verb) -- **d.-l.** -- acc. – acc. (Altern.: acc. -- acc. – **d.-l.** -- (verb) -- **d.-l.** -- acc. -- acc.].

55.4 (I) *[z]aja* (scarcely *[z]ata*) *: ãpiti [.. a]tli : pijanuwa* (or *l-* ??) '(He) enforces (*ãpi-ti*) tribute for himself (d. *atl-i*) to be paid (or: for the nymphad, all. *lijanuwa* ??)';

(II) *kuli-ke* ***: mru[w]asi : tidñta*** *: xbade : s<e>be* ***: purese*** *: mñnusama : lajata* '(He) used to bring (*xba-de*) the troops / army (acc. sg. *kuli*) **to feast** (d. sg. *mruwas-i*) **for libations** (d. or all. *tidñt-a*), and [he used to bring] the military (*mñnusama*) takes / trophies (*lajata*, acc. coll.) **for purifications** (d. pl.? *pures-e*)'.

[Altern.: *mruwa-si* 'feast-oriented, pertaining-to the-feast'? is an adj., attr. to *kuli* // *pure-se* 'for / to weapon(display)s' ?? (: Sid *buar* 'weapons' [displayed as gift]).

For d.-l. *mruwas-i* 'to feast' (cf. *-mruwas-a*, next, to **mar(h)uwassar*).

It is clear that the structure and meaning of the appropriate symmetric construction in 44 (next) is similar to the above which was a prototype for the construction in 44.

We may note that *xbade ... erẽpli* (d.) *: sabaka* (d.) *: detbeleima* (acc.) 'brought the command to supply for libation(s)' (44c) may match precisely not only *kuli* (acc.) ... *mruwasi* (d.!) *tidñta : xbade* 'brought the troops to feast(-place?) for libation(s)' (55), but also 44c59 *erẽple* (d. pl.) *: xradi : waxsa* (acc.) *: truijele* (d. pl.) '(he) keeps warriors at the supplies during victory[?]-feasts [for protection]' (: d. sg. *trujeli*, 44c34), as well as 44c34-5 *zppli* (d.) *: xi* (d.) *xbati : qetbeleimis* (acc. pl.; note *qetbeleima* above) '(Trqqiz) brings the warriors to the offering-place (*z.*) for *xi*-feast' where *xi* relates to Lyc-Mil verb *xi(s)-* 'offer (repeatedly)' (about animal-sacrifices; cf. nouns Lyc *uwadra-xi* and Mil *xapa-xi*).

A corroboration for *purese* = 'for purification(s)' may be found in Lyc. *(a/e)stte ... puna[ra] ... tãmade zxxazije* '(he) made purifications for weapons / trophies of warriors (= for military trophies)', as well as in Lyc *sttati ... terñ punere-be sebe pubere* 'stands an altar (: Mil d.-l. pl. *tere*) for purifications and givings'. It is possible that *pure-se & pune-re* originate from IE **pu-ro- /*peu-n-* 'purify' (Pok. 827)].

55.4-5 [Note 4 imperative sentences-instructions] (I) *epe des<i> : qajã : wesñteli : prijãmi : [...] qrbblali* 'Take, libation priest (voc. */desi/*), (the god(dess)) Qaja of Wesñte to (the god) Prijama/i for libation (d. *qrbblali*, to *qrbbli* 'gobblet')!'

(II) *sebe da xbaladã : t[u]wẽm[i] lei* [or */elei/* ??] *: [ma]d[ra]* (?) *: erei[m]edi* 'And put/place (*da*) (goddess) Xbalada for offering (*/tuwẽmi/*) from supply / levy (*ereimedi*) at / during *l.* (?) for thriving[?] (if */madr-a/*; altern.: */wedr-e/* 'at water') !'

(III) *epe palarã : wzza [:] ijesi* 'Take the *p.*-vessel to / for *w. i.* !'

(IV) *ãla : xi : zinase* 'Offer (imp. *xi*) the *ã.*-treat(s) to / at *zinasa-* !'. (Cf. *zin-i*).

Next comes an instruction for a *tuwi*-rite (cf. 44d as well): Atrala(-priest?) has to glorify gods (acc. coll. *prijãma* ?) for their deeds (protection of Pixre; loot-rich fights):

55.5-6 *me-i (e)be-i-pe : tuwi-be-w(e) ẽnẽ-slatu : wesedi : prijãma : pasñte : [pixre]se atrala : seb(e) erbbi : kmq̃i-ke (e)lbbeweli* 'Now here / for him, during a *tuwi*-rite, let [my?] personal [priest] (? *atrala*) glorify (*ẽnẽ-sla-*) the Prijãma-gods (??) with goods / goodies (*wesedi*) for protection (*pasñte*) of Pixre and for booty-rich (? *(e)lbbeweli*) fight(s) (*erbb-i*) and siege(s) / attack(s)[?] (*kmq̃-i*) !'

55.6 (I) *kapsaqẽ pinau : ut(e)-mq̃rimi* 'I'm giving share(s) for levy-related / annual[?]

distribution [to people]';

(II) *mlu neriu : muwaxa : tuwẽmedi : xaba : tutasiz : ne ki-k(e) epñ* 'I strengthened water-gods' pledge (=endowment?, *mlu*) with offerings for devotion / confidence (*xab-a*), kinsmen (voc. pl. *tuta-s-z*), and nobody (or 'nothing', acc.?) [else] later / thereafter'.

55.7 (I) *mlu [:] xrau plluwi : <t>uta* [in text *zuta*] 'I keep the glorious? / spacious (*plluwi*) pledge (/endowment?, *mlu*) for [my] kin (d. or all. *<t>ut-a*);

(II) *ne-k(e) irelesi : ki xrãti ziwalã* 'And they shall not keep (3rd p. pl. pres.-fut. [if not gerund] *ne xrãti*) any (= whatever, *ki*) *ziwala*-allotments/provision in limitation (l. sg. *ireles-i*, to **irhalassar* ?)',

(III) *ne-ke : luwadladi : ki lle* [= */lel-e/*, d. pl.] *terblẽ : qereimedi* 'And [they shall] not keep any hostility /conflict (acc. sg. *terblẽ* to Lyc *trbbele-* 'hostile') in / for gossips (d. pl. *ll-e* =*/lele/*) from (=about) brawling(s)? [&] raidings (*luwadladi ... qereimedi*)'

55.7-8 *ubre ñz(e) abrala : ute ñneri : (a)rm̃paimi : m̃qri[s]ti : zm̃pra : qelei: punamadijedi : ãala : tuxaradi* 'During drinking / libations (*ubr-e*) at ....-stands / during deliveris / 'bringings' (? */ñz-e/*), at the collection (/harvesting?) place (l. sg. *qel-ei*), the divine enforcer / restitutor? (*ñneri : (a)rm̃paimi*) will be timing / rationing regularly (verb */m̃qri-s-ti/*), for deliveries (d. *ut-e*) the [offerings / treats] *abrala*, *zm̃pra*, [and] *ãala*, with a total fumigation (instr *punamadije-di ... tuxara-di*)'.

55.8-9 (I) *sse pssẽ : qirzã : trqqñtasa ti{:}k(a) di<j>a : qelẽnẽti : ñtete : xrbbla[ta...* 'For distributions / serving-out (d. pl. */ses-e/*), at the tomb(s)? (*ñtete*), they'll accumulate (vb. *qel-ẽn-e-*) share(s) (acc. sg. *qirzã*) of grants / levies (g. pl. *pssẽ*), at Trqqiz's stores / supplies (? *xrbblata*) for treats /meals? [and] for *dija* (= 'drinks' ? or 'performances' ?)' [55 */tika dija/* matches 44 *dije tike* in very similar contexts]

(II) .....*]i : tunewñni* '[---] for the Ruler(-of-Lycia)? (d. sg. *tunewñni*)'.

II. MILYAN LEXICS

This part of the paper includes comparisons of Mil words with those of older languages from Luw group, namely. HrL (section 1) and Luw (section 2); we may see that, on many occasions, Milyan behaves as a typical Luw language (as expected), - precisely like Lycian.

The 3rd section includes the vast majority of Mil words (along with a linguistic analysis).

1. COMPARISON OF HIEROGLYPHIC LUWIAN AND MILYAN WORDS

asharimi- 'blood sacrifice', *ashana(n)tisa-* 'blood-offering' : *a/esãna-* 'blood' (syn. Lyc *esede-*) // *atri-* 'form ... soul' : *etri-* / atli* 'self' // *hali-* 'day' : *xali* id. // *hantawati-* 'king' *xñtawaz/ta* (d. sg.) 'ruler' (or coll. 'rulers') // **hapi-* 'river', *hapada-* 'river-valley' : *xbadi-z* 'Lycians' < 'valley-people' < 'valleys' // *hazi-* 'engrave', *haziwiri-* 'rite' (Luw *hazziwit-*) : *xzza~ta-* 'rationing (for a rite)', or sim. // *huhurpa-* : *qrbb-li-* (vessel, goblet) // *huri-* 'a lib. vessel' : vb. *qre-* 'pour' ? // *hur-n-ali-* 'hunter' : *qereime-* 'hunting' or sim. (< **huwarai-* ?) // *irha-* 'frontier', *irhali-* 'frontier post', **irhalisa-* 'to delimit' : *irelesi* 'for delimitation' (or sim.) // **kula(na)-* 'army' : *kuli* id. // *la-* 'take' (also Luw) : *la-*, *le-* id. (also *lei-* ?) // *lala(n)ti-* 'tongue', HtLuw *lala/i-* : *leli-* / d.-l. pl. *lle* 'talk, gossip' // *lamini* 'in the moment' : *lẽpr-i* 'time, schedule' (:Ht *lammar*) // *luha-nu-* 'burn' (?) : *luga-* (vb., a destructive action) // *lus-lus-* 'burn', *luzali-* (adj.) 'sacrificial' (for burning)' : *lusasi-*, *lusali-* 'fummigating' or sim. (to noun *lusa-**) // *marati-* 'request, order' : *marãz* (acc. pl.) 'laws, rules' // *maruwa-** (god) : *mrGGas* < *mrGGãz** (gods; Luw Marwainzi / Ht Margwayas (: Lyc *mrbb-* ?) // *muha-* 'ritual', */mukisar-/* 'ritual' : *muxssa* (incantation ?) // *muwa-* 'strength, courage' : *muwi* (d. sg.), vb. *muwa-* 'strengthen', or sim. // *ni(s)* (prohib.) : *ni* (id.) // *(ni)niya-* 'to turn, follow' : *nẽnije-* 'direct (to)' // *pihas-* 'lightning, victory' (?), *pihami-* 'glorified' : *pigas-a* (all. sg.) = *trqqñt-a* 'for Trqqiz (=Storm-god)' // *piya-* 'give' : *pije-* id. // **punati-* all, every' (= Luw) : *punamada-* // *sa-* (iter. *sasa-*) 'let, allow' (= Luw) : *sesi* (d. sg.) 'for distribution' (d. pl. *sse*) // */salha(t)-/* 'greatness' (Luw *salhitti-* / *salhanti-*) : *sla-* 'to honor / glorify', *ura-sla/i* 'for / at the grand glorification' (rite) // *sana-* 'seek' (Ht *sanh-*) : *sẽkẽ* (acc. sg.) 'search', or sim. // *sapa(n)tali-* '?' (adj.), *sapa(n)tari-* (an occupation) : *saba-* 'lipation' (:Ht *sap-ant-*) // **sarli-* 'upper' : vb. *seri(je)-* 'to elevate' // *sarwa-* 'to increase' : (?) *zrbb-la-* **000** // *ta-* 'put' : *ta-* id. (in inf. *tñne*); also *da-* (in 55) // *tamahi(sa)* 'abundance' (Ht *tammetar*) : (?) *tẽpe* 'for / till abundance' // *tarawi-* 'to provide' : *trbb-*, *trbb-ẽn-i-* id. // *tarpali-* 'substitute' : *trppali* 'replacement'?, vb. *trppala-* 'replace' or sim. // *tupi-* 'to smite' : *tubi-* id. // *tuwi-* 'two' : *tbi-* id. // *tu(wa)-* 'to put' : vb. *tu-*, noun *tuwi-* 'feast / rite', *tuweme-* 'offering, dedication' (Lyc also vb. *tuwe-*) // *upa-* 'to found' : *ube-* 'dedication, grant' (?) // *ura-* 'great' *ura-sla/i* (see sub *salha-*) // *uwami-* 'having drunk' (vb. *uwa-*) : *uwa/e-* 'to toast' < 'drink' (?) // *wasa-* 'to be good, dear' : instr. *wese-di* 'with goods' (or sim.)

2. COMPARISON OF CUNEIFORM LUWIAN AND MILYAN WORDS

Mil words which have precise parallels in Luwian (but not in Hittite) are underlined.

ahha 'when, as' : Lyc-Mil *ẽke* id. (see List below) // *aya-mmi-* 'made' : *eim̃* = */ei-mi/* id. // *allalla-* 'falling aside' : Lyc *ala* 'aside' : ? Mil *ala/i-* 'nobility' // *ana-hit-* '(advance) sample (during an offering)', vb *anai-* 'consume' (?)sample, taste', vb. *ana(i)-* 'consume' : */ana-z/* 'treats' // *annan* 'under' : *ẽnẽ* 'under, beneath' (=Lyc) in *ẽnẽ-sla-* 'to honor' or sim. // *annara/i-* 'forceful, virile' : *ẽnari-* 'mighty' (:Ht *innara-*) // // *arpa-* 'strife', etc. : *erbb-i* 'for the war' (also Lyc) // **assatti-* 'peace' (CM), rather 'durability', adj. *assattassi-* : Lyc *ahata* (adj. *ehetehi*) : Mil *eset-i* 'for durability' (adj. *esetesi* 'perennial' ?), to Ht *āss-* 'remain, abide' < Anat (cf. CLL 35) // *ashar/n-* 'blood' : Mil *asãna- / esẽne-* (etc.; in compounds with *mla-* 'offering') // *adduwa-l-* 'evil' (noun) : Mil. d. sg. *edul-i* (:Ht *idalu-* 'bad') // *halli(ya)-* 'day' (HrL *hali-*) : *xal-i* (d.-l. sg.) id. // *hantawati-* 'suprime authority' : Lyc *xñtawati-* 'ruler' : Mil *xñtawaza* (d. sg.), DS: *xñtawa<t>a* // *hapati-* 'irrigated land' (also Ht) : *xbadi-z* (pl.) 'vallies; Lycians' // *hapi-*, *hapai-* 'bind, attach to' : Lyc-Mil *xba-* 'bring' or sim. // **hula-* 'winding, bent', *huillari-* 'winding, twisting'[?] : (?) Mil *qele-* 'collect(ion)', *qelelija-* 'enclosure', etc. (IE **H*^{w}*el-* 'wind, twist') // *hur-* 'give liquid' : *qre-* 'sprinkle'[?] (both < **H*^{w}*er-*) // *huwaya-lli-* (epithet of the Sun-god) : *qaja* (DN) ? // **immara/i-* 'open country' : */m̃para-n-a/* (all.) 'of the Steppes' (epithet of Trqqiz) // *irhatta-* 'circle' : *ire-le-si* 'to limitation' (< **irhalassar*; Ht *irha-* 'boundary') // *kapissa-* : *kapsaqẽ* 'share' // *-ku* 'also, furthermore' : *-ke* 'and' (from IE **-k*^{w}*e*) // *kula-n-* 'army' : *kul-i* id. // *k(u)war-/kur-* 'cut' (:Ht *ku(e)ra-* 'field') : *keri* 'field, district' (Lyc *ter-*) // *la-* 'take' : *la-* id. (not in Lyc); *lalami-* 'itemized list, receipe' : */lẽm-e/* (d. pl.?) 'taken' (prtcple) or noun 'takes, spoils'; *lalatta-* 'act of taking' : *lajata* (acc. coll.) 'takes' // *lala/i-* 'tongue, gossip' : *leli-* 'speech, stele', d. pl. *lle* 'to gossips', *leli-* 'retell' (with acc.) // *malhassa-* (pl.t.) 'ritual' : *mlesi* id. (?) // *marh-* 'stew', **marhanuwa-* : *mruwasa*, *mruwasi* 'feast' // **marsa-* 'treachery' : *mrs-xx-a-* 'to cheat; a cheater' // *marway(a)-* 'dark'; gods *marwainzi* (:Ht [gods] *mark(u)wayas*) : [gods] *mrGGas* (akk. pl.; expected *mrGGãz**) // *massaninzi* 'gods' : *masaiz* 'gods', *masa* (coll.) 'gods' // *mu-muwa-* 'invigorate' : *muwa-* id.; *muwa-* 'strength' // *muwattalla/i-* 'mighty' : *mut(a)la-* // *mura/i-* (a rite) : *muri* id. // *na*, *nawa* 'not' : *ne*, *neu* id. // *nani-* 'purify, appease' (vb.) : *nei-* (adj.) 'purificcation / purifying' (?) // *nanna-* 'drive' (also Ht), **nini-* 'guide, lead' : *nẽnije-* 'direct, lead' (or sim.), **ñne-* (= Lyc) 'drive away' // *pa-pra-*, *para-*, *parh(a)-* 'drive, chase' (:Ht *parh-* 'gallop') : *pre-* id. (also noun 'raid') // *pari* 'forth, away' : *pri* 'later' // *pariyan* 'beyond; especially' : *prije-* 'foremost' // **padd-* 'carry', *paddaliya-* 'carry off' (:Ht *peda-*) : *padre- / pdur-a-* (vb. 'deliver'), *pad(a)-* (nominal stem 'give-out') // **pihassa/i-* 'luminous' (cf.

HrL), epithet of Storm-god : all. *pigasa* = *trqqñta* 'for Trqqiz / Storm-god' // *pi(ya)-* 'give' : *pije-* id. // *puna-* 'all' : *punamada-* id. // *puwa-* 'pound, crash' : *pubra-* 'break, damage' < **puwar* (appropriate verbal noun) // *sa-* 'release, let go' (:Lyc *ha-*), noun *sasa-* 'release, grant' : *ses-i* (d. sg.) 'for distribution' (d. pl. *sse* 'for grants') // *salha/i-* 'great' : vb. *sla-* 'honor', noun *ura-sla-* 'grand-honoring' (rite) // **saptammi-* 'seven' : */septãmi-/* id. // *sarri* 'above, up' (:Lyc *hri*) : *seri(je)-* 'to elevate' (DS) // *suwaru-* 'heavy' : *sbir-te-* 'contribution, share' // *-tte* (loc. particle) : *te* 'here' // *tamma-* '(captured) weapons' : ? *tm̃m-e* (d. pl.) 'weapons' (with attr. */lẽm-e/* 'taken'); possibly, Lyc *tãmade* id. (with attr. *zxxazije* 'of warriors') // *tarawi(ya)-* 'hand over, deliver' : *trbb-*, *trbb-ẽn-i-* (dur.) id. // *tarpalla/i-* 'ritual substitute' : *trppali* (acc. sg.) 'change, replacement', vb. *trppala-* 'replace, renew' (?) // *tuhhara-* : *tuxara-* 'fumigation' (or sim.) < IE **dh(e)uH-* 'smoke' // *tuliya-* 'assembly' : *tulijewe-* id., attr. *tulije-li-* (:vb. *tu-t(u)l-* 'multiply', magnify', or sim. < IE **tu-twel-* 'growth') // *dupi- / dupai-* 'strike' : *tubi-* id. // *tuwa-* 'put, place' : *tu(s)-* 'apply'?, noun *tuwi-* 'rite, feast' (adj. *tuwije-*), *tuweme-* 'offering'? (Lyc also vb. *tuwe-*) // *u-* 'drink' : *uwe-* 'toast' (:Ht *eku-* 'to drink'), cf. *ewẽne* 'to drink' (inf.), *ub-r-e* 'for libations' (< IE **eg^{w}h-r-*) // *upa-* 'to furnish, grant', *upatit-* 'landgrant' < 'donation' : *ub-e* (d.-l. pl.) 'for donations' (or sim.), *ub-ẽ* (g. pl.) 'of grantings / donations' (similar in Lyc) // *ura-* 'great' : *ura-* id. (in compounds) // *uwata-* 'bring' : noun *ute* (?), nominal stem *uta-* // *warta(i)-* 'to turn' : *urt(t)u(wa)-* 'quota' (this IE root also in Engl *worth*) // *wassar-* 'favor' : *wese-* id. // *wawi-* 'cow' : *uwa-*, *uwadra* id. (:Lyc *wawa-*, *uwa-*, *uwadra-*) // *wisi- / wisai-* 'to press' : *wisi-* 'impose', noun *wis-id-i* (d. sg. coll.) 'for inforcers' ? // *zappal-alla-* 'caretaker of *zappal-*' : *zppl-i* (d.-l. sg.) 'at the altar / offering-preparation place', or sim.

3. MILYAN WORD LIST

a(i)- 'make' (also Lyc) in imp. 3rd p. sg. *adu* 'let one make!' (governs */ede/* 'it / this'; there is no '*dadu*'), to Ht, Luw *a(ya)-* 'make'; cf. *eim̃*; iter. vb. *a/es-* // *abr-ala* (acc.) 'libation'? (for gods? [built as Lyc *ad-r-a-*]) to IE **eg^{w}h-r-* 'drink' (> Mil *ub-r-e* 'during drinks / libations'; related: vb. *uwe-*, inf. *ewẽne*), type of *ã(-a)la* (acc.), *qrbbl-ali* (d.), *sap-ali* (d.-l.), *zb-ali* (d.), *zriq/g-ali* (d.) // *abura* (n. coll.) 'enforcers'; may be used with *eke* 'in localities'; see *eburẽni* // *(a)da* (or *(a)da[-z]* ?) (acc.) 'food, meals' (for Trqqiz) to Luw *ad-* 'to eat', Ht *adatar / adanna-* 'eating, food', etc. (Anat / IE) // *ala-* (in adj. *alasi*), *ali-* 'nobility' (d., acc. *ali*; opposed to *mire*, *pasba*, *ẽtre*) : Lyc *ala-* (preverb) 'aside' : Luw *allalla-* 'falling aside' (or sim.) // *alba-* 'libation, to libate', *albãma* 'drink, libation', *albm* id., *al[b]m̃* (=*/albãme/*, d. pl., pendant to *tsse*) 'for libations' (?), *(a)lbijẽi* (n. sg.) 'libation priest'? (cf. *terẽi* 'offering priest'?); *albrãna* 'vessel, libation'? (for Trqqiz); cf. ? Ht *alw-anza-* (adj.) 'affected by sorcery' (from IE), cf. also Mil *elu-* // *alGã* (acc.)

'profit, gain' < IE **alg^{w}h-* id. ? // *[a]na-z, [an]a-z* (acc. pl.) 'treats' (or sim.) to Luw *anahi-* '(advance) sample (during an offering)', vb *anai-* 'consume' (?); cf. *ã(a)la // a/epñ-ta-* 're-delivery / distribution' (noun; refers to additional offerings / libations), cf. *da-, ta-* 'to place' // '*are/i-* 'companion'' (DLL 112) seems not to exist // *armp̃a* 'Arma(-Trqqiz)', *armp̃ali, armp̃aimi* 'divine' to Lyc *armm̃/pa-* 'moon(god)' // *a/es-* 'make, pay' (iter. to *a(i)- e(i)-*) see *estte* (Anat); different: *asa, asxxa-, eseti, esetesi* // d. *as-a* 'for durability / continuity / steadfastness'[?] (see caus. vb. *as-xx-a-* which is clearly a derivative from noun *asa*; cf. *eseti*); altern. [much less likely]: *asa* to Lyc connector *ese* (DLL 113; if so, *dewis asa muwati zrẽtẽniz* may mean '(he) strengthens / libates[?] both the Dewe-inhabitants and the (local) commanders') // *asãnã-* 'blood' in *asãnã-ml-a, esẽ/ãnẽ-ml-a* (d.-l.) 'blood-offering' (or sim., DLL; to Luw *ashar/n-* 'blood'), not 'ruler'; see *mla-, mle-* // *as-xx-a-* 'make permanent; preserve'[?] (denom. caus. vb., see *asa*), cf. *eset-i* (/Lyc *ahat-a*) 'for durablity'[?], adj. *esetesi* (/Lyc *ehetehi*); '1st p. pret. *asxxa* 'I made" doesn't exist; all to Anat **ass-* 'remain, abide' (> Ht *āss-*) // *atl/ra-* 'person, self' (also Lyc), d. *atli*, adj. *atlasi*, deriv. vb. *etrqqi-* [<**a/etri-qi-* ?] 'appropriate'[?], noun *atr-ala* 'perssonal [priest], attendant' (?), to Ht (pl. t.) *attes* 'soul, spirit' (A. Kassian); Anat / IE.

ã(a)la (acc.; cf. *abr-ala*) (some offering); possibly = */anala/*; cf. */ana-/* // *ãpi-* 'to impose' (acc. *zaja* 'taxes') to Ht *(a)impa-* 'load, burden' (noun), vb. *impai-*, ? Lyc *amm̃ãma-* 'fine, penalty' < 'burden' (DLL 3, St. 000); *ãpi-* is synon. to *wisi-* // *ãzi* (n. sg.) / *ñz-e* (? d.-l. pl., syn. *tije* ?) 'grant' (?) to IE **n(e)k̂-* 'carry' (or 'drink' ?) ('*ãzisse*' is a ghost word, we have *ãzi : sse*; cf. d. pl. *ñz-e* & d. sg. *se-si* / d. pl. *ss-e* (structured as d.-l. sg. *lel-i* / d. pl. *ll-e*).

da- 'to put, place' (imp. 2nd p. sg. *da* 'place!', all in 55) to IE **dhē-* id.; see *ta-*; cf. *ñta-da // des<i>* (voc., after *epe* 'take!') 'libation priest' (to *di(je)-* ?), built as *kuprime-si* 'priest' (to *kuprimi*), *ikete-si* // *'ddelu'* doesn't exist; we have *dde + lupeliz // dewis* (acc. pl.) 'people of Dewe/i' (?), attr. to *zrẽteniz* 'protectors' (local commanders) [but cf. *asa*]; see *zrẽtẽni-*; in DLL 114, *dewi-s* is compared to Lyc *d(d)ewe-* 'gift, dedication' (cf. DLL 9) which seems unlikely // *dezi* n. sg. ('libation', or sim., as required by context: pendant to n. pl. *m̃qrimi-z* 'distributions, handouts' // *dije* pendant to *tike* in 44; matches */tika dija/* in 55; *dije* my mean 'for drinks' if to IE **dhe(i)-* 'to suck' (related: *tidñta* 'for libations' : Ht *titant-*; cf. here also Lyc *ti-dei-mi*, etc.), cf. *de-s<i>, dezi*; altern. for *dije*: 'for shows, performances' ?? // 'vb. *dditi*' doesn't exist; see *qidra-s<a>-di* (abl.) and *tiu* (acc. sg.).

ebu- 'to violate'[?] in 3rd p. sg. *ebu-di* (also Lyc); cf. *eburẽni, abura // ebure* see *abura // eburẽni* in *n(e) eburẽni* 'don't damage / seize!'[?] (imp. 2nd p. sg. like *trbbẽni*), possibly to Ht *epura(i)-* 'to besiege, dam up, level' <IE **ebh-ur-* (also in Gr; HED v. I, 282-3); dur. suff. *-ẽn-*; cf. *ebu- // edul-i* (d.) 'for harm' (closer to Luw *adduwali-* than to Ht *idalu-*) < IE/Anat **ed-wol-* (no 'noun *prijedulise-*', DLL 125) // *e(i)-* see *a(i)-* and *eim̃ // eim̃ = /eimi/* prtcple '(is / was)

made' (subj. *ãzi*, some grant), precisely to Luw *ayammi-* 'made'; see *a(i)-* // *ekãnẽ* (g. pl.; scarcely acc. (DLL)) 'of victims' (i. e., animals to be sacrificed) to Ht *akkatar / akkannas* 'dying, death' < *e/akk-* 'die' (from IE) // *ekebure* see *eke-* and *abura* // *eke-* 'locality' (Lyc *eke-*); note that abl.-instr. *(-)kedi* may be either *kedi* (to *ki* 'whatever', 44d38) or *ekedi* (to the above *eke-*, as in 44d67-8 *mire (e)kedi (i)je* 'commoners with / from the locals' + *ije*); 'd.-l. pl. *kedije*' doesn't exist // there is no '*ekemije-*', only *kemije-* // '*ekeri*' doesn't exist; see *keri* // *elu-* 'to libate' only 1st p. sg. *elu-wi* ('*eluu*' is impossible) with a Luw ending; to IE **alu-* 'beer', etc. (cf. Ht *alwanza-* 'affected by sorcery' ?); cf. d. sg. *[e]l(u)-xruje* (or *[e]l(u)-xrujes(i)*; with attr. *epñnasi*) 'for drink-entertainment'[?]; cf. *xruwasaz* (some grants for offerings / feasts) and Lyc *xruwe/i-* 'offering stand' (DLL); *xruje-/xruwa-* as *truje-/truwe-* [*xruwasa-* is only formally comparable to Lyc *trusa-* (IE **treu(s)-*)] [altern.: *el-u-wi* to *eli-* < *ali-** 'nourish' as in *ñt(e) elija* 'on / for treatment' (?); *elei* 'for nourishment' (not *lei*); *[e]l-xruje-*; cf. IE **al-* 'to feed (on)'] // *ene* 'this' (acc.; with variants) introduces a direct obj. // *epe* 'take!'; *ep-di* '(he) takes'; similar in Lyc; cf. *epñna-si* // *epe-* see *epe-qzzi* // *epedes* see *epe* & *des<i>* // *epe-qzzi* 'repeat-feast / re-offering' (?) quasi-syn. to *qzze*, *qñza*, *qezm̃mi* (lit. 'killing'); functionally similar: *epñ-ta-* & *epri ziti* 're-delivery' , cf. *epñ*; to Ht, Luw adv. *appa* 'back' // *epñ* 'after' (also Lyc) to Ht, Luw *appan* 'after, back' (IE); cf. *epe-*, *epri* // adj. *epñna-si* 'of seizing' (to *ep-*, *epe-* 'take'), attr. to *[e]l(u)-xruje* [or *[e]l(u)-xrujes(i)*] 'for drink-entertainment / feast'[?], to Ht inf. *appanna*, vb. *app-* 'seize, catch, capture', cf. *epe* 'take!, *epdi* 'takes'; for semantics, cf. *lelebedi*, *qiqlẽniredi* *<q>idrasadi*; cf. next // *epñ-ta-di* (also *a-*) abl. to *epñ-ta-* 're-delivery' (if *epñ* + *t/da-*) to Ht, Luw *appan* 'after, back'; cf. *epe-*, *epri*; altern.: 'takes, spoils' to Ht *appant-* 'seized; captive' < *epp- / app-* 'seize, capture', Mil *ep(e)-* 'take' // *epri* 'later, subsequent' (adj. in *epri-ke ziti* 'and for the subsequent delivery / treating / apportioning' (?)) // *'ep(s)sẽ'* doesn't exist // *ereime-* 'levy; supply'[?]' [possibly, as process in *tralije [e]reime* 'during Trallian levy (I libated the authority for ...)' and in *zi-(e)reima*], verbal noun to Lyc-Mil vb. *er(e)i-* 'raise' (Anat / IE); cf. *zireima* // *er-ẽpli* 'supply' to IE **em-l-* (?); here also *zi-(e)rẽpl-e* (d.-l. pl., to *zi-* 'share, provision'); cf. *(e)ri-psse* 'tribute payments' // *erikle* 'Heracles' (*herikle* in Lyc), epithet of Lyc ruler Xeriga // '*erije*' seems not to exist // *ermed-e* 'for / during proclamation'[??] (DLL 115; not a verb!) in 44c62 and, possibly, 44d1 *[m(e) erm]ed(-e)* (a glorification follows: 'And let them glorify Lycians with libations!') // *eset-i* (d. sg.) 'for continuity', syn. Lyc *ahat-a*; cf. adj. *esetesi* 'perpetual'[?] (:Lyc *ehetehi*, Luw *assattassi-*), all to Ht *āss-* 'remain, abide' (from Anat; cf. DLL 2, 'peace'? 'victory'?); cf. also *asa*, *asxxa-* // *esẽnẽ-mla* see *asãnã-mla* sub *asãna-* 'blood' // *estte* '(he) made / used to make' to *a/es-* (iter. to *a(i)-*) // *etrqqi* (imp.) 'appropriate!' (?); certainly not a noun; see *atl/ra-* // *eweri* see rather *weri* // *ewẽne* 'to drink' (inf.) to Ht vb. *eku-* 'drink' < IE **eg*^{w}*h-* id.; cf. *uwe-*, *ubre*, *abrala.*

ẽ 'when' (also Lyc) // *ẽnari* (sic!) 'Mighty' (= Xerẽi, as also *zrẽtẽni*, *ñtuwitẽni* ?) to Luw *annara/i-* (Ht shows a different shape: *innara-*; for phonetics, cf. Mil *eduli*); there is no '*ari*' here // *ẽke* 'when' (also Lyc) to Luw *ahha* (for phonetics, cf. *sẽkẽ*) // *ẽmi-* 'my'; *ẽmu* 'for me' (*-mu* 'me' lacks in texts) // *ẽne* see *ene* // *ẽne-si* 'maternal' (d., not acc.) to Lyc *ẽne-hi* < Lyc-Mil *ẽne/i-* 'mother' (Anat / IE) // *ẽnẽ* 'under, beneath' (also Lyc) to Luw *annan*; used as adv. in *ẽnẽ-sla-* 'to honor' or sim.; cf. *sla-* id. // *-ẽpli* see *er-ẽpli* // 'adverb *ẽti*' doesn't exist // *ẽtre* (d. pl.) 'lower ones, commoners' (syn. *mire*) to Lyc *ẽtre/i-* 'lower' (Anat / IE).

hñtawã (city name in Lyc shape, acc. sg.), used among other such names in Mil shape in the description of Xerẽi's first Lycia journey; possibly identical with Mil **sãtawa-* (?) in adj. *sãtñni-ju* (acc. sg.; used in the description of Xerẽi's second Lycia journey) if from **sãtawa-wñni-*; for the suff. form, cf. *mirẽñne* < *mire-wñne** and *xuzrñta* < *xuzruwãta* (both latter forms co-exist); note that Lyc *hãta-** (: Mil *sãta-**) may be name of the god Sanda (DLL 22).

-i 'for / to him; here' (cf. Lyc); syn. *ije* (?) // 'verb *ije-ti*' most certainly doesn't exist in texts; we have nouns (d. pl.) *dije tike* (in 55, */tika dija/*); there is no '*dijeti-ke*' // *ikete-si* (in *s(e) iketesi*) 'manager' or sim. (in texts about offerings / feasts for warriors), possibly to IE **ēik-* 'to own' (altern.: IE **aik-* 'to call' ?); built as *kuprime-si* (offering priest), */desi/* 'libation? priest' // *ilẽne* 'nobility'?, possibly to Ht *ile/a-ssar-* / *ile/asn-* 'sign, significance, importance' < vb. **ilai-* '?' (cf. HED I, 358); 'd.-l. pl. *ilẽnedije*' doesn't exist; we have abl. *ilẽnedi* 'with / from the nobility' and *ije* (adv. or pron.) // *irele-s-i* 'limitation; end'? (d. sg.) < **irhala-ssar*, cf. Ht *a/irha-* 'line, limit; border, confine', etc.; Luw *irhatta-* 'circle', HrL **irhali-* 'external'; cf. Mil suff. *-sV-* (<**-(e)ssar*) also in *pure-se*, *zina-se*, *pi-se*, *-mruwa-sa* (*/ mruwa-si*), *pru-x-ssi*.

kal-u 'I'll call'? to Ht *kall-es-* id. (Anat / IE) // *kapsa-qẽ* (? acc.; suff. as in *kãtdqẽ*, g. pl.; cf. suff. *-qi*) 'share' to Luw *kappisa-* id. // *kãtdqẽ* (= */kãta-qẽ/* ?) (g. pl.; about treats for Trqqiz) 'of wheat'? if to Ht *kant-* 'wheat', cf. *kñtre* // *kedi* 'through which, because of which', abl.-instr. to *ki* 'who(ever), what(ever)'; different: *ekedi* (to *eke-*); for '*kedije*', see *eke-* and *ki-* // *kemi(je)-* (adj.) 'abusive, pushing' (attr. to *waxsa-* 'warriors' or 'strikes' in instr.); noun *[k]em(i)* (?) 'pusher' or 'clumsy one' [being unable to properly conduct an offering rite for Trqqiz and all gods]; possibly to IE **kem-*, **k(o)m-éye-* 'press, hem in, hinder' (cf. LIV 313), etc.; cf. also *kmq̃i* // *keri-* 'field, district', d.-l. pl. *ker-e*, to Lyc *ter-* 'territory', or sim., Ht *kuera-* 'field' < 'cut' (Anat / IE); cf. DLL 63 & 117; in 44c51-2 *keri ... prete laxadi : zrẽtẽni* 'Protector (Xerẽi) used to gallop (:Ht *parh-*) to the [battle-]field (d. sg. *ker-i*) ...'; (?) 44d23-24 *tere kere : sxxaija kuti pssat[i :] zajala* 'If the tax-payer (*z.*) pays regularly at *t.*-stands in the districts / fields? (*ker-e*) till fill-up? (*sxxaija*) ...' (cf. syn. */sxxaxa/* in 55) // *ki* 'who(ever), which(ever), any' (n. and acc. sg.; *kedi* abl.-instr.; *kize* d. pl. ??) to Lyc *ti* < Anat and IE **k^{w}i-* 'who, what'; note the above *ki* in *ki-be* (correct interpret. of 44c59 in DLL 117); different: *kibe* 'or', next // *kibe* 'or' (:Lyc *tibe*) in 55.3 (about treats for Trqqiz); 44d.51 (*kibe-i me-i per-epñ* 'either here or? there, [either] soon(er)

[or] later'); 44d.52-3 (*epe-qzz-i kibe pruxss-i* 'during repeat-feast(s) or during *p.*-rites'); different: *ki-be* 'whoever / whatever' + *-be*; see *ki* // *ki-ki-* 'cause / order to pay' or sim. (DLL 118); related: d. or all. *uta-kija* 'for delivery [or: yearly] payment(s)'; 'noun *kille*' doesn't exist (see *ki* and *lle*, d. pl. of *leli*); cf. Lyc *tti-* 'cause to pay' to Ht *kui-* 'to pay' < IE **k^{w}ei-* 'to collect compensation, to fine' (LIV 339); cf. Mil *klle-ima* / Lyc *tll(e)i-* // *kize* 'to whatever' (??) (attr. to *qle*, d. pl.); indentified with Lyc acc. pl. *tise* in DLL 118 (if so, obj. of vb. */pẽniu/* 'I'll drive / chase away'); cf. *ki* // *klleima* (acc.) 'payment(s)' (*klleim-e* d. pl.; *klleime-di* abl.-instr.), cf. Lyc *ttl(e)i-* 'pay', also *tlla-* (possibly <**teteli-*, cf. DLL 68); see *ki-ki-* // *kmmasa-* 'all, everything' (cf. DLL 118) // *kmmẽti* 'how / as much; however many' (DLL 118) // *kmq-i* 'for raid(s) / siege(s)'? (d. sg. coll., pendant to *erbb-i* 'for battle(s)' with attr. *lbbe-we-l-i* 'rich on spoils / takes', to *le-lebe-*, *lebi*, *laba*), possibly to IE **kem-* 'press', **k(o)m-eye-* 'hem in, hinder' (see *kemije-*); for *erbbi kmqi-ke* 'for battle(s) and raid(s)'?, cf. word pairs of the type *predi ... laxadi* 'from raids, from fights' (come the warriors), syn. *waxssadi ... predi*; for suff. in *km-qi* (<**kemi-qi*?), cf. vb. *etrqqi-* <**etri-qi-* ? // *kñt-r-e* (d. pl.) 'for wheat/ crops'?, see *kãtdqẽ* // *kres-e* 'in the army'? to IE **koro- / *koryo-* 'war, army, people' (Pok. 615), Lyc stem (in PNN) *krehe-* as in *krehẽ-nube-* *'excellent? in fight' (??), type of *qẽtri-here-* ? // *kudi* 'as' (:Lyd *kud*), Luw *kwati(n)* 'as; how?' (CLL 117) // *kuli* (acc. sg.) 'army, troops' to Luw *kwalan- / kulan-* 'army' (< IE **k^{w}el-* 'kin, crowd'; cf. Mil syn. *tuta-*) // *kupri-* 'to favor', verbal noun *kuprime/i-* (always in offering / feast-related contexts) 'delicacy, favorable (dish?)' (?) (cf. DLL 118; probably, to IE **keup-* 'desire') // *kup-ttl-e* (d. pl.) 'for the cooks'? (at offering / feast preparation; note Anat-IE suff., see *mut(a)la*) to IE **kwe(H)p-* 'to boil / simmer; to smoke' (cf. LIV 354); cf. terms (used in semantically similar passages) *lusa-** 'fumigation' or 'fragrance' (?) [in adj-s *lusa-si-*, *lusa-li-*], *tuxara-* 'fumigation' or sim. // *kuti* 'if, when' : Ht *kuwatta* 'where'; cf. *kudi* // *kzta ẽ* 'when required', or sim. (DS: */kñta/*); etymologically unclear.

la- 'take' (DS; not 'release') in *la-de* 'took (people for libation: *muw-i*)', *lãte* (3rd p. past pl.), */la-xa/* (1st p. past sg.) to Luw *la-* 'take'; related: acc. coll. *laja-ta* 'takes / spoils' (syn. to *laba*, next) : Luw *lala-tta-* 'act of taking'; *lẽm = /lẽme/* (d. pl.) 'taken' (DS) or noun 'takes / spoils' : Luw *lalami-* 'itemized list, receipe' // *laba* 'takes, spoils' (acc. coll. with attr. *wixsaba*), *leb-i* 'for / into seizure' (d. sg.?), abl. *le-lebe-di* 'from takes / spoils', *lbbe-we-li* 'rich on spols / takes'? (adj., d.-l. sg.; not to *alba-*), to IE **labh-* (Pok. 652) or **lembh- / *l(o)mbh- / *labh-* (LIV 369-70) 'seize, grab' (or to *la-* ??); see related *lebi* // *lada-** 'wife, lady' (DLL 119) in acc. *xba-ladã* (goddess) to Lyc *lada* 'wife' (probably from IE) // *laGra* (acc.) 'vessels' or 'offering stands' (?) to Ht *lahhura-* id. (< **lay^{w}-* 'pour'); d.-l. sg. *laGr-i* // *laja-ta* 'takes, spoils' : Luw *lala-tta-* sub *la-* // *lbijẽi = (a)lbijẽi* 'libation priest' (built as *terẽi*) see sub *alba-* // *lbbeweli*, *leb-i* see *laba* // *lei-/li-* 'to release' (?) in *-leimi* (originally

prtcple 'free(d) / released' (??) in *qetbe-leimi*, *tuple-leimi*; cf. *qaba-limi-* ??) and vb. *lide* '(he) released' ;cf. Ht *lā(i)-* 'to release' // *lelebedi* see *laba* and *lebi* // *leli-* 'speech; stele' (the latter meaning in d. sg. *lel-i*, 44c62), possibly, only 'stele'; *lle* = */lele/* (d. pl.) 'for talks / gossips' (cf. Luw below); vb. *leli-* 'speak, retell' (noun *lle* and vb. *leli-xa* are used in two similar contexts in 55) : Luw *lala/i-* 'tongue, gossip'; there is no '*llete rblẽ*' (see *terblẽ*) // *lẽm̃(-pe)* : Luw *lalami-* see *la-* // *lẽpri* (acc. sg.) 'time, schedule' (?) to Ht *lammar* 'moment, instant' (similar: *m̃qr-i* : Ht *mēhur* 'time'), HrL *lamini* 'at the moment'; similar: Mil *m̃qr-* vs Ht *mēhur* // *li-de* (3rd sg. past; not noun) 'released'[?]; see *lei-* // *lije/aiz* (acc. pl.) 'nymphs'

(DS, see DLL 120; no 'n. pl. *lijeiz*' in 44d60: we deal with acc. pl. *lijeiz ... lupeliz*); no '*ddelu p<l>eliz*' // *lijenuwe-* 'nymphad, place of naiads, pool' (cf. DLL 120, following DS); rather *pijanuwa* than *lijanuwa* (55); 44d depicts nymphads near Xanthos, not the one in Wesñte (subject of 55 narrative) // *lle* see *leli-* // *luga-* 'to damage' (in some [yet unclear] way), either to IE or to HrL *luha-nu-* 'burn' (in Mil text, tomb enclosure and nymphs' statues may represent wooden objects which makes a meaning 'burn' possible) // *lupeli-z* (acc. pl.) 'fragile'[?] (attr. to 'nymphs'), possibly, to IE **leup-* 'peel' (see sub *lije/aiz*) // *lusa-** (noun) basis for adjectives *lusasi-* and *lusali-* 'fragrant' or 'burnt / fumigated' (about offerings), to HrL *lus-lus-* 'burn'; cf. syn. *tuxara-* 'fumigation'[?]; see *esãnãmla* and *zẽna* // *luwa-dla-* 'breaking' or sim. (possibly to IE-Anat vb. **leuH-* 'to cut (off)'; note also IE-Anat suff.), pendant to verbal noun *qereime-* 'chasing'[?] in 55 (abl. *qereime-di*).

madrane (inf.) 'to make prosper' (or sim.; about nymphs), (?) *[ma]d[ra]* (d. or all.) 'for prospering / maturity' (altern.: l. *[we]d[re]* 'at water' ?), cf. Ht vb. *mai- / miya-* 'grow (up), prosper' (etc.), *may-ant-* 'grown up, adult', *maya-* 'much, great' (Luw *maya/i-*; this is a Luw lexeme) // *mara-* 'law' (also Lyc), d.-l. (or acc.) sg. *mer-i*, acc. pl. *marãz*; cf. Ht (<Luw) *marh-* 'be successful' ? // *masa* 'gods' (acc. coll., not n. sg,; not d. pl.; cf. grammatically identical *qetbeleima* 'warriors'), *masaiz* id. (acc. pl.; cf. *qetbeleimis*), to Lyc *mahãi* (n. pl.); Mil adj. *masasi* (Luw lexeme, lacks in Ht) // *masxxm̃* 'grant' (:Ht *mask-an-* id.), suff. *-m̃* < **-man* ?); 'adj. d.-l. pl. *masxxm̃tije*' doesn't exist // *mawa-* 'remove'; *mawili* (n., not acc.) 'enforcer, guard', lit. 'remover' (or sim.; syn. *ñneri* in 55); cf. similarly built *qñtili* 'manager(s)'[?]; cf. Ht vb. *mau(s)-* 'fall' < IE **me/ou-* '(re)move' > OI *moṣati* 'steals', *mīvati* 'shoves, pushes', Lat *mōvere* 'set in motion', etc. // 'verbs *medu-*, *metu*' don't exist // *meri* see *mara-* // *mire* 'commoners' (coll.), *mirẽñne* (adj. in d. pl.) 'of commoners' (with a pseudo-Lycian suff., as also in *sãtñnija-* to ethn. **sãt(a)wñnija*, or rather **sãtawa-wñnija*; similar simplification: *xuzrñta* < *xuzruwãta*) // *mla-*, *mle-* 'sacrifice, offering' (to Luw *malha-ssa-* 'ritual, sacrifice', Mil *mlesi* below, cf. DLL 40 & 121; but *mlu* is different); cf. *esãnã-mla* 'blood-offering' (not 'ruler'); d.-l pl.[?] *mleje* or *memleje*; *mlẽ* g. pl. (refers to *pruwa*) (DLL: acc. sg.); *ñte-mle-si* or *mle-si* 'during a rite' (or adj. to n. sg. *(a)lbijẽi* ?); cf. also *mlati* // *mla-t-i* (d.-l. sg.; only in 44) seems to refer to

some offering (?) place (functionally similar to *q(e)l-ei*, rather place than process, only in 55); see *mla-* // *mlu-* (only in acc. sg. *mlu*) 'pledge, endowment[?]' (mostly concerns periodical tribute / treats for gods) < Anat **malduwar* 'recitation', cf. Ht *malt-essar* id. < IE **me/oldh-* 'solemnly announce' (altern.: to Lyc *mlu-* 'care for' < Anat **mel-* 'think', DLL 40); acc. *mlu* represents noun *mlu-* (cf. Lyc *mlu-h-id-*), not the genetically different *mla-* 'offering' // 'noun *ml[.]xra*' doesn't exist; see *mlu* (acc.) & *xra-u* (vb.) // *mñnusama* (55) may mean 'military'[?] (attr. to acc. *lajata* 'spoils, takes'; syn. *wixsaba laba* 'military spoils' in 44; Lyc d. pl. *tãmade zxxazije* 'trophies of warriors' ?), possibly to pre-Lyc-Mil **mñnusa-* 'man, warrior'[??] (<IE), cf. Lyc PN *mñnuha-* (but the link seems too far); altern.: to Luw *mannu-* '?'; or *ma-mmanna-* 'look at' > 'regard with favor' (CLL 134), etc. // *mrGGas* (acc. pl.) 'Margwayas' (gods) / Luw *Marwainzi*; instr. *mrGGdi* (not a verb); note *mrGGas uwẽti* 'when toasting / honoring (*uwẽti*) the M.-gods' (:Mil-type PN *Masa-uwẽti*); to IE **merg*^{w}- 'dark' > Luw *mar(u)w-* (for Mil-Lyc *G*, cf. also *alGa-* <IE **alg*^{w}*h-*, and *laGra* : Ht *lahhura-* ; *G* seems to match [γ^{w}] < [g(h)w / xw / γw] in certain positions) // *mrsxxa-* 'violate; violator / cheater' to Ht caus. vb. *mars-ahh-* 'desecrate, make treacherous', Luw *marsa-* 'treachery' (= Ht 'unholy, treacherous') // *mruwasa** 'feast' in d. or all. *pad(a)-mruwas-a* 'for / during the give-out feast' (for *pad-*, see vb. *padre-*); cf. *mruwasi*: either noun in d.-l. sg. or (less likely) adj. in acc. sg. (attr. to *kuli* 'army'); *mr-uwa-* seems to refer to feast preparation and may relate to Ht *marr(a)-* 'stew, ripen, melt', *marha-* 'kind of a stew or cooked food', Luw *marha-nu-wa-mma-* 'brewed' or 'reduced to small pieces' [cf. *mruwasa* : **marh-uwa-* (:*marha-* 'soften' or 'reduce to small pieces') vs *xruwasa-* : **h(a)rr-uwa-* (:Ht *harra-* 'beat to pieces'), not to Mil *xra-* which rather means 'keep'] // *-mu* 'me' doesn't exist; *albmubẽ* is to be analysed *albm* (acc., cf. *albãma & albã* 'libation') + *ubẽ* (g. pl. 'of grants / offerings') // *muni* (subj. 2x), possibly a PN (DS) // *mul-ẽn-i* (acc. sg., a treat; lit. 'strengthening' [note suff., identical to that in durative verbs *mur-ẽn-e-*, *qel-ẽn-e-*], cf. Lyc PNN of the type Mullijese <**muwalli-esi* 'shall-be-strong', DLL 99); cf. *muwa-* // *mura/i-* (d. sg. *mur-i*) 'libation[?]-rite', adj. acc. sg. *murei* (attr. to *tuwi*, some major celebration / feast), probably to Luw *mura/i-* (some rite); durative vb. (sic!) *mur-ẽn-e-* 'libate' or sim. (acc. obj. = warriors); not to Myra; may ultimately relate to *muwa-* // *mutala / mutla* 'clumsy one' [> 'drunk one' ??] < 'mighty' (: Luw *muwa-ttala/i-*), see *muwa-*; functionally, *mutala* is comparable to */kemi/*, see sub *kemije-* // *muwa-* 'to strengthen', usually in connection with libations (not 'to overpower'; cf. rather Luw *mu-muwa-* 'invigorate'), noun *muwa-* 'strength' or 'strengthening' (d.-l. *muwi*, d. or all. */muwa/*; cf. HrL *muwa-* 'stength, courage'[?]), actually, 'libation' (?); there is no 'noun *muwilade*' (we have noun *muw-i* in d. sg. and vb. 3rd sg. past *lade*, to *la-* 'take'); *muwa-* is a Luw lexeme // *muxss-a* (d.-l.; not acc. pl.) 'during / for *m.*-rite' to Ht *mukessar* 'invocation (rite)' (:HrL *mukisara/i-* 'ritual'); *muxssa* is used like *tesẽni* and, possibly, *ermede*.

/m̃parãna/ (all. sg., attr. to *trqqñta* 'Trqqiz') 'of the Steppes'; *trqqñta* = *pigasa* (also all.) // *m̃qre-* 'timing, rationing' to Ht *mēhur* 'period, time'; *ut-m̃qrimi* 'for rationing for deliveries (*ut-e*)'; altern.: 'for yearly timing / rationing' (:*ut-e* *m̃qri-s-* 'to ration (regularly) for a year: Ht *witt-i mēhur* 'time / period in a year'); '*m̃qreime*' doesn't exist (we have d. pl. *m̃qr[e : e]reime* 'for rations during levies' ?); there is no vb. '*m̃qriti*', only *m̃qri[s]ti* (sg.; not 'pl. *m̃qri[ñ]ti*', which, actually, would be hardly possible in Milyan, cf. *ñt-uwitẽni* [not *-iñt-*] vs Lyc *uwiñte* [PN]; Mil *pidritẽni* [not *-iñt-*], etc.).

ne (once *na* before vb. *lax<a>*), *neu* 'not' (different: pron. in acc. *ne / ene* 'this') // 'noun *neburẽni*' doesn't exist; see *ne* & vb. *eburẽni* // *nei* adj. (phonetically [neĩ / nẽj] ?) 'purification'[?] in acc., attr. to *talã* (: d.-l. *tali*, a rite); acc. pl. *neiz* (attr. to *tuwiz*), possibly to Luw vb. *nani-* 'purify; appease' (?) (*nei* 'this' or 'for guidance' doesn't exist) // *ner-e* (d. pl.) 'for water-gods' (from IE), adj. in acc. sg. *neriju* (attr. to *mlu*); hardly 'sisters, sisterly' (DS) // 'noun *nestte*' doesn't exist; we have *ne =ene* 'this' (acc. sg., refers to *urttu* 'quota') and vb. *estte* 'made, used to make' // *nẽnije-* 'to send / direct / deliver' to Ht *nanniya-* 'drive' // *ni* 'not' (prohibitive), used only with imperatives (DS); there is certainly no 'd. *zrppeduni*' (DLL 123): DN *zrppedu* is acc., it is followed by a standard phrase *ni-ke* + n. sg. 'and [there shall be] no ... !' // *nuniti* is to be analysed as *n(e) uniti* 'one doesn't deliver (+ acc. *xruwasaz*)', to Ht *unna/i- / unniya-* 'send / drive here' (as opposed to Mil */pẽni-/* 'drive there' vs Ht *penna- / penniya-* 'send / drive there'); see *uni-*.

ñneri (n. sg.) 'guard, remover' (or sim.; syn. *mawili*) to Mil-Lyc vb. *ñne-* 'chase away' (as in Lyc *zum̃mẽ* [acc. sg.] *ñneti* 'will remove evil / harm', cf. Late Anat. noun *00Zum̃mẽ-ñneri*, lit. 'evil- remover') // *ñtada* (44), *ñtete* (55) 'at the tombs'[?] (place of offerings, feasts, etc.; syn. *[xu]pe* (?)); see *ñte*, *da-*, *ta-*, *ute* // *ñte* 'in(to)' (also Lyc), DLL 123; also 'then' (to Ht *anta*) (Anat / IE) // *ñteli-* 'internal' (cf. DLL 123) = 'Lycians' (warriors?); *ñtelija* is d. or all., not acc. pl.; cf. *ñte* // *ñte-mle-* (in *ñte-mle-si*) 'offering rite' or 'sacrificial istallation' (also Lyc, DLL 123); altern.: *ñte* means 'then'; *mlesi* [or *ñte-mlesi*] is adj., possibly, to *(a)lbijẽi*; cf. *mla-*, *mle-* // *ñtete* (55) 'at the tombs'[?] (cf. syn. *ñtada*, 44), as in Lyc; cf. *ñte*, *ta-*, *da-* // *ñt-uwit-ẽni* 'inspector, overseer'[?] title of Xerẽi (?), cf. Lyc syn. (?) *ñt-uwe-ri-* (in *ñtuweriha*, pendant to *zxxaza* 'for warriors'); Lyc PN *uwiñte* (vs Mil type *uwita*); all this if to **uwe-* 'see', cf. Ht *au-s- / uwa-* id., cf. also Ht noun *au(wa)ri-* '(fortified) lookout'.

pad(a)- first stem in compound (d. or all.) *pad(a)-mruwas-a* 'during (Lycian) give-out feast(s)', cf. vb *pad-r-e-* 'present', etc. (next); cf. *mruwasi* // *pad-r-e-*, *pd-ur-a-* 'to present, provide', noun *pidr-it-ẽni-* 'provider'[?] (Mil. *-it-* : Lyc *-iñt-*), Lyc stem *padr-ãt-*, possibly all to Ht *peda-* 'take, carry' and Luw *paddaliya-* 'carry off' (Lyc *padr-ãt-* : Mil. *udr-ñt-* [in d.-l. pl. *udrñte* 'at the supplies / bringings'] vs Ht verbs *peda-* : *uda-*) // *palarã* 'vessel' (acc. sg. in an offering instruction 'take *p.*-vessel to / for ...'; there is no 'compound *epe-palara-*'; *epe* means

'take!'); *palaraima* (prtcple or verbal noun in all.) refers to rites for 12 gods // *pas-** 'to protect' (:Ht *pahs-*) is seen in d. pl. *pas-ñt-e* 'for protection (of Pixre)' (DS); cf. *pas-* in *pasb(b)a-*, next // *pasb(b)a-* 'troops; guards', possibly to Mil root *pas-** 'to protect' (as in *pasñte* 'for protection')< Anat **pahs-* 'protect, be loyal', from IE (there is no *pasba-* 'sheep'); cf. Lyc *pisbas* '?' // *pasñt-e* 'for protection' see *pas-** // *pdura-* see *padre-* // *per-e* (d.-l. pl.) 'for future (treats)', *kibe-i me-i per(e)-epñ* 'either here or[?] there, soon(er) (or) later' (?); to Lyc *perepñ* // *pibi(je)-* 'give' (also Lyc) : Luw **pi-piya-* id.; related: *pije-*, *pina-*, *pssa-* (:Luw iter. *pi-pissa-*), nominal forms with *psse-*, cf. also *pis-e* 'during payments' (syn. *klleim-e*) // *pidritẽni* see *padre-* // *pigas-a* (all., not acc. nt.) = *trqqñt-a* 'for Trqqiz' (all.) : Luw adj. *pihassa/i-* 'luminous'[?] (epithet of Storm-god = Mil Trqqiz), noun 'lighning'[?] (? syn. Lyc *xrssẽn-i*, d.-l. sg.) // *pije-*, *pina-* see *pibi(je)-* // *pirl-i* (d. sg.) 'in Aperlai' (city, visited by Xerẽi during both his journeys), adj. *prlleli* (acc. sg.), attr. to *ppeqzz-i* = *epe-qzzi* (a feast) // *pis-e* (d.-l. pl.) 'during payments', probably to **piya-ssar* (built as *zina-se*, *pad-mruwa-sa*, *mruwa-si*, *irele-si*); cf. *pibi(je)-*, *pije-*, *pssa-* // *pleje-re-* 'offering stand'[??] (for *qezm̃mi-*killing [of animals] = feast preparation)' [to Luw *palha-* 'make flat, spread out', *palhamman-* 'laying flat, spreading out' : Lyc *plm̃meje* ??]; note d.-l. pl. *plejere se [xu]pe* (?) [altern.: *plejerese [xu]pe*] // *pleli-z* 'Phellian(s)' (usually acc. pl., attr. to 'nymphs'; once voc. 'Phellians!'); there is no '*ddelu p<l>eliz*', only *dde lupeliz* (the text is not about Phellos) // *plluwi* acc. sg., 'positive' attr. to *mlu*; *plluwi* may relate to Ht *palkuwa-* 'to praise' = *palwai* (?); it is not related to *pleliz* (above); the text is not about Phellos // *pre-di ... laxa-di* (abl.) 'from raids / galloping [and] from fights' (); related: vb *pre-te* , next // *pre-te* '(Xerẽi) was gallopping', see *predi* (= instr. of *pre-* 'raid' or sim.; cf. DLL 125) // *pri* 'first' (adv.; also Lyc), *prije(li)-* 'first, foremost; noble' (adj.) // *prijãma* '*p.*-gods' (?) (acc. coll., used as *masa* 'gods'), d. sg. *prijãm-i*; relates to Priam (pre-Greek = Luw) ? // *prije-* 'first' (in acc. sg. [or g. pl.] *prijẽ*), syn. *prijeli-*; see *pri* // *prijedulise* = *pri -j- eduli se* 'first, for evil / harm (*edul-i*), and [then ...]'; see *eduli* // *prlleli* 'of Aperlai', acc. sg., attr. to *ppeqzzi* = *epe-qzzi* (rite / feast; used in description of Xerẽi's 2nd Lycia journey); see *pirl-i* 'in Aperlai' // *pruwa* (d. (?); some grant for feasts; used with g. pl. *mlẽ* [not acc. sg.]), semantically similar: *masxxm̃* (a grant for treats / feasts); d.-l. sg. *pru-x-ss-i* (a rite) may be related; possibly to Luw *pa-pparkuwa-* 'cleanse, purify', Ht *parkui-*, *parkuwalli-* 'pure' // *pruxss-i* (d.-l. sg.) is a pendant to *ppeqzzi* = *epe-qzz-i* 'during re-offering(s)', or sim. (about Xerẽi, providing treats for people / officials of Lycian nymphads (after all the levies have been paid / delivered, lit. 'made')); cf. *pruwa*; *pruxssi* may originate from **par(k)w-ahh-essar* // *pssa-* 'pay / give regularly' (iter.), cf. *pibi(je)-*, *pije-* 'give'; cf. nominal stem *psse-* // *psse-*, *-psse* (nominal forms) 'payment(s), bringing(s)', *psseje* d.-l. pl.[?] (adj. or noun), adj. *pssesi* (sg.); cf. noun in d. pl. *pise*; vb. *pssa-*, *pibi(je)-* // *pttil-i* (d. sg.) 'for swiftness' (pendant to *xustt-i* & *qidral-a*); cf. Ht *pittiyalli-* 'swift' // *pu-* 'adjoin' (DS 'beigesellen' with acc. *zrppedu* '[god] Sarpedon [=staue]; cf. DLL 125), cf. Lyc *pu-* 'add'

(Carruba), GL 289 // *pubra-* 'to break', or sim. (+ acc. 'Trqqiz's supply') <**puwar-*, to Ht *puwai-* 'to crush, pound' // *puke-* vb. with neg. (sic!) meaning: *ne puketi ... ulaxadi* '[Kaunian Natri] won't threaten / attack (?) with strikes [the Protector-Xerẽi]' // *punãmada-* 'totalty, everything' (also Lyc), adj. *punamadije-* 'total' (attr. to *tuxara-* 'fumigation' or sim.) // *pures-e* 'for purification(s)' (< IE **pu-ro-* 'pure'; cf. *pr-uwa-* ??), syn. to Lyc *punere* (< IE **peu-n-* 'pure', same root **peu-*), acc. *puna[ra]* (governed by *estte* 'made') // *pzzi-* 'to determine' (also Lyc) with acc. 'share (of takes) / treats [for a feast]'.

qaba-lime/i- 'fault-less' (??), about sacrificial animals, cf. *qetbe-leimi-* = *tuple-leimi-* 'invulnerable'? (? lit. 'assault-free(d)'); see also *lei-* // *qaja-* (name of god(dess)) : (?) Luw *huwaya-lla/i-*, epithet of the Sun-god // *qã[n]a-* (?) see *qã[t]a-* // *qã[t]a-* (?) 'restoration, fine, compensation'?, possibly etymologically identical with Luw. noun *huwanta-*, cf. *huwantala-* (> *huldala-*) 'protector, guard' (?); cf. *qñtili*, *qñtbe*, *qñtra*; note Lyc *qñta(ti)* // *qelei* = *qlei* (d.-l. sg.) 'to collection(-place)'? < *qel(e)-* 'accumulation, collection', vb. *qla-* / *qel-ẽn-e-* 'collect' (acc. obj.: treats for gods or people), nouns *qi-qlẽnire/i-* 'collection, assemblage' (?), *qelelija* (acc., with attr. *trm̃milija*) 'wealth, amassment of supplies' (?), *qel-id-eli* 'of harvest'? (to *qel-id-* and Lyc Qele/i-, 'god of grain' ?), *qlija-* 'enclosure' (in acc. *qliju* with attr. *xupeliju* 'of tombs'), possibly related: Lyc-Mil *qla-* 'precinct' or sim (Mil d.-l. pl. *qle* and form *qleb* = *qla-ebi*); all to IE **Hwel-* 'twine' > Ht *hulaliya-* 'tie up, enclose', etc. [a less likely altern. for *qi-qlẽnire/i-*: 'fighting'] // *qereime-* (verbal noun; 2x in abl.-instr. *qereime-di*, 55) 'raiding, chasing' to Ht *huwar-na-* 'chase', cf. Lith *varýti* 'chase, drive' (IE **H*^{w}*er-*) // *qetbe-leimi-* lit. 'assault-free' (?), syn. *tuple-leimi* (?); cf. *qaba-lime/i-* // *qezm̃mi* (also *qzze*, *-qzzi*, *qñza*) 'killing' of animals (for offering or feast), to Ht *kuen-* < IE **g*^{w}*hen-* (DS); also in Lyc *qã(n)-*, *qas-* 'destroy' // *qidri-* 'to dash (to ... with strikes)', syn. *xustti-*; *qidrala* 'for raiding / dashing' (pendant to *pttili* 'for swiftness' and *xustti* 'for rushing / raiding'; about troops), *qidra-sa-* 'of (=from) raids / hunts' (?), about treats; 'acc. pl. *qi[d]ras*' doesn't exist // *qiqlẽniredi* see *qelei* // *qirze-* 'share' (about offerings, treats, earnings; *-z-* < **-ty-* ?), possibly to Ht *huwart-* 'curse' < IE **Hwert-* 'vow' // *qle* (etc.) see *qelei* // *qm̃qi* see *km̃qi* // *qñnã-tb-a* (all.) 'for twelve (gods)', *qñnãtbi-su* '12 times'; Lyc *qñnã-kba* '12' (attr. to *tabahaza* 'shining / blazing (gods)' + *xrssẽni ehbi* 'in his [= Storm-god's] brilliance', to Ht *harki-* 'white, bright', Lat *arg-ent-um*, etc. < IE **Hrĝ-*); Mil component *qñnã-* can be tied to numeral '10' in remotely related non-IE languages, namely, Altaic (cf. Proto-Turkic **o.n-* 'ten' < 'count' ?); this allows to reconstruct a Nostratic root **XUnV-* (or sim.) > PIE (or, rather, proto-Indo-Hittite; lost in West-IE) **H*^{w}*en-* / **H*^{w}*en-en-* (?) // *qñtbe-* 'administrator, manager'?, d. sg. (?) *qñtil-i* (possibly, enforcement office, cf. n. sg. *mawili*); *qñtra* 'nobility' or 'authority'; Lyc stem *qñtl-*, cf. similar PNN (all related to Lyc-Mil *qñt-* ?); cf. also Ht *huwantala-* (an official) // *qñza* see *qezm̃mi* // *qrbbli* 'gobblet'? (instr. *qrbbledi* with *ẽnẽ-sla-* 'to honor' = 'to toast' ?), *qrbblala-* 'libation' (in d.-l. sg. *qrbblali*) : Ht *huwarpalli-*

'cymbal', Ht, Luw *hurp-a/us-ta-* 'leaf, scale', related Luw *huwarp-anna-* (? cf. Pok. 1153 **werb(h)-*) // *qre-* 'to sprinkle' or sim. (about a rite for Trqqiz; acc. obj. *albrãna ... trqqñtasa*, cf. *alba-*), probably to Luw *hur-* 'give liquid'; altern.: to Ht *hu(wa)rai-* 'to ornate' // *qtti-* in 3rd sg. past *qtti-de* 'removed'? with acc. phrase *albm ubẽ* 'libation (vessel?) of grants /dedications (for rites for 12 gods ...)'; clearly an act of violation; cf. Ht *huittiya-* 'pull'; altern.: to IE **Hwith-* 'shake', as in Goth *withon* id., etc. (Cop; see HEG 1, 272) // *qzze, -qzzi* see *qezm̃mi.*

saba- 'libation', syn. *sabaka*, adj. *[saba]k-ssa* (< */sabakasa/* 'drink/wine-abundant', or sim., attr. to *pad(a)-mruwasa* 'give-out feast'?, d. pl. or all.; for semantics, cf. */elu-xruje/*), to Ht *sap-ant-* (in adj. *sapant-alli-* 'pertaining-to-libation'), probably from IE (Pok. **sab/p-* 'to taste'; cf. *sapala-*) // *sapala-* 'libation'? (for Arma-Trqqiz) in d.-l. sg. *sap-al-i* [not a verb] < IE **sap-* (Pok. **sab/p-* 'to taste'); cf. syn. *qrbbl-al-i* (to *qrbbli* 'gobblet, drink'), cf. *saba-* above // *sãtñnija-* (adj. used in the description of Xerẽi's 2nd Lycia journey) < **sãta-wñni-ja-* or rather **sãtawa-wñni-ja-*, adj. to place name **sãta-* or **sãtawa-*; cf. city name *hñtawa-* (< Lyc with *h-* < *s-*) used in description of Xerẽi's 1st Lycia journey; for suff. simplification, cf. *mirẽñne* < **mirewñne* // *se* 'and' (also Lyc); cf. *sebe* // *sebe* 'and' (also Lyc) < *se-* 'and' + particle *-be*; *sebe ... sebe ...* 'both ... and ...' // *sebe-* 'to specify, assign, (ear)mark': '(Protector-Xerẽi) earmarks (*sebe-di*) [4 cities] for allotment / delivery (d. sg. *ziw-i*) of shares (g. pl. *qirz-ẽ*) [from war]', possibly to IE **s(w)ebh-o-* 'own, specific' // *seke-* 'to break'? in *ni seke-tu* 'let him not break ([vessel] to drink / for drinking for Zeus-Trqqiz)' < IE **sek-* 'cut' > Ht *sekk-* 'know' (Mil is more archaic than Ht); from Anat / IE // */septãmi/* 'seven', written *sljtãmi* (a frequent misspelling in 55: use of wrong, but graphically similar, letters, - with *l* for *e*, and *j* for *p*); Anat-IE numeral // *seri(je)-* 'to elevate' (DS), cf. related Lyc *-here, hri* (Anat / IE); not to Mil *zriq/gali* or *zrqqiti* // *ses-i* (d. sg.; d. pl. *ss-e* = */sese/*, as *lel-i* vs *ll-e*) 'for giving-out / distribution', possibly to Luw vb. *sa-ssa-* (redupl.) 'release, grant', Luw *sa-* = Lyc *ha-* 'release, let go' (CLL, DLL) // *sẽkẽ* (acc. sg.) 'search' or 'confiscation' (?) (obj. of imp. 2nd sg. *tu* 'use / apply / order!') to Ht vb. *sanh- / sah-* 'seek, demand, punish' (< IE **senH-* 'reach, grab', cf. LIV 482); for phonetics, cf. Lyc-Mil *ẽke*; altern.: Mil *sẽkẽne* to Lyc *hẽken-e* '?' (d.-l. pl. ?), though this may be *ehẽkene* (DLL 23, GL 92) // *sla-* 'to honor' (frequently used with preverb *ẽnẽ*); cf. noun *ura-sla/i* 'for / during the grand-honoring (feast)' (there is no acc. *urasla*), possibly to Luw *salha/i-* 'great, grown', *salhitti-*' (CLL), HrL *salhat-* 'greatness, succession' (simplified in Ht *salli-* 'great, important, respected') // *slama- / slãma-* 'to add' (+ libation to gobblet; *zrbbla-* stuff to offering stand) to Lyc noun *hlm̃me/i-* 'addition, gain, income'; cf. *sla-* ? // *sljtãmi* see */septãmi-/* // *sm̃mẽt-e* 'obliging, obligatory', participle in d.-l. pl., attr. to *klleim-e* 'payments' (here as process: 'during payments'); to Lyc *sm̃ma-* 'bind, enjoin' (ultimately to Anat / IE); not to *zm̃p-* // *sse* see *sesi*; *ssepssẽ* see *sesi* (d.-l. pl. *sse*) and *psse-* (g. pl. *pssẽ*) // *stt[ã/ẽ]ni* 'becomes angry' (about Trqqiz; see DLL), to Lyc *httẽmi-* (DS; ultimately from IE) // *sttrm̃mi*

(acc. sg. coll. 'those-of-the-estate' ?) may match Lyc *hrm̃mi**; altern.: IE **str-men-* 'spreading' > 'people' (Pok. 1029-30) // *sukre/i-* 'drink, libation' (noun, not adj.; probably from IE **s(w)ekʷ-o-* 'sap'), d. sg. *sukr-i*, abl.-instr. *sukre-di* (not a vb. [cf. DLL 129]) // */sxxax-a/* (d. or all., 55) 'for fill-in / fill-up' (syn. *sxxaija*, 44d; not n.-acc.), about tribute delivery (built like *mrs-xxa-*, denom. vb. and noun; *as-xxa-*, denom. vb.); cf. exact semantic match in Ht *sah-* 'to stuff, plug up, fill in' (probably to IE **saH-* 'to satiate; enough', Pok. 876; cf. LIV 471-2); cf. Lyc *pri trqqas hexis* which may be interpreted as 'first, Trqqas (voc.), you satiate yourself (2nd p. sg. in *-s*)' (??).

ta- 'to place' (also Lyc; cf. also *da-*, 55) in inf. *tñne* (cf. DLL); cf. nouns *ute-ta-* 'tribute-delivery' (if stem *ute-* to Ht vb *u-da-* 'bring here'; cf. Mil *uta-kija*) or 'yearly-rationing' (if *ute-* to Ht *witt-* 'year', see *ute-m̃qris-*), *ñtete* 'at the tombs'? (55, as in Lyc; *ñtada* in 44); *ta-* or *da-* in *a/pñ-ta-* 're-delivery' [if not to Ht *appant-* 'seized; captive']; cf. related *tije*, *za-za-*, *zi-* // *tala-* 'purification rite'? (acc. *talã*, d.-l. *tal-i*) to Ht. *talliya-* 'invoke, implore (a deity)', *talles-* 'be favorably disposed', *talli/a-* 'soft, mild' (IE, as in Slav **toli-* 'to sooth' < **telH- / *tlH-*, cf. LIV 564 & Pok. 1061) // *tasñt-u* (acc. sg. of *tasñta-* = Lyc *tahñta-*, DS; not *ahñta-*), kind of an offering stand (+ instr. *(u)wadi* 'with bovines', governed by *trbb-* 'provide', implied: 'for *tuwi-* offering / feast') // *tbi* 'two' in *tbi-plẽ* 'two-fold' in g. pl., attr. to *qirzẽ* 'shares' (to be given to warriors); from IE, cf. *tr-pplẽ*; *tbi-su* 'twice' (Lyc *kbi-hu*), *qñnã-tbi-su* '12x' // *te* 'here' (also Lyc) to Luw *–tta* (loc. particle) // *terblẽ* (acc. sg., DLL 130) 'brawl, hostilities' (syn. *xlusã*), to Lyc *trbbele/i-* 'hostile' (cf. DLL 69) : Ht *taru- / tarwai-* 'go wild, dance', *tarwal-* 'pestle', Luw noun **tarwal-* 'dance'; there is no '*llete rbblẽ*', DS (see d. pl. *lle* sub *leli-*) // *ter-e* (d.-l. pl.?) 'at altars' (cf. *terẽi* 'altar-supervosor', or sim.) to Lyc *terñ* (n. sg.) 'altar / offering stand' [which serves 'for purifications and givings': *punere ... sebe pibere*], possibly to Ht *tarra-*, *tarrawai-* 'provide' (:Mil *trbb-* id.); quite different: Lyc *ter-* / Mil. *ker-* 'territory, field' // *terẽi* (n. sg.; built as *(a)lbijẽi*) 'altar-supervisor', or sim.; see *ter-e* // *tewe-* (vb.) 'compensate'?; verbal noun (not prtcple) *tewẽm̃* (= */tewẽmi/*, acc. sg.) 'compensation'?; related to Lyc *tawa*, etc. (?); possibly to Ht *tawana* 'exact, true, peremptorily' (from IE; cf. GL 339) // *tẽp-e* (d.) '(drive / use tribute laws) for abundance?', possibly to Ht *tam(m)etar* 'abundance', HrL *tami-hi(-sa)* id.; 'vb *unitẽ*' doesn't exist (see *uni*, imp. 2nd p. + *tẽpe*); altern.: to IE **temp-* 'strain oneself' > 'get strong'; cf. *tm̃pewẽti* // *ti* 'who' (borrowed from Lyc) in *ti mlu* (not 'noun *timla-* in acc.') // *tij-e* (d. pl. of *tija-**) 'for grants / shares / portions'?, acc. sg. *tiu* 'portion' (for Trqqiz) < *tijã** (n. sg. *tija**), possibly to Lyc *tijala* (if not to 'pay' / Mil *-kija*); related: *tike* (in *dije tike* 'for drinks? [and] for portions / meals?'; in 55, it matches */tika dija/*), cf. Ht *dai-*, *tiya-* 'to lay, set' (etc.) and Mil *d/ta-* 'to place'; cf. also Mil *zaja-*, *zajala-*, *za-za-*, *zi-* // *tik-e* syn. to *tij-e* 'for portions'? (used in d. pl. *dije tike* = */tika dija/* in 55); *tike/a* may originate from **tijaka* (built as *sabaka* 'for libations' to *saba-* 'libation'); cf. *tije*, *tiu* // '*timla-*' is a ghost word; see *ti* and *mlu* // *tirbe-ti* (or *titbe-ti*)

'will strike', to *terble-* / Lyc *trbbele-* (or to Lyc *tebe-*) // *titbeti* see *tirbeti* // *tm̃m-e* (d. pl.) 'weapons'? (with attr. */lẽm-e/* 'taken') to Luw *tamma-* '(captured) weapons' (CLL); cf. Lyc *tãmade* id. with attr. *zxxazije* 'of warriors' // *tm̃pewẽti* 'people, troops'?, possibly to IE **temp-* 'strain oneself' > 'get strong' (see *tẽpe*); there are Lyc parallels // *tm̃qr-* see *ut-e m̃qr-*; *tm̃qrisñte* is not a noun but a vb. (3rd pl. past, ending *-ñte*) // *tñne* 'to pay (with acc. *qã[n/t]ã* 'fine')', inf. to *ta-* 'place, put, pay' ? (cf. DLL; see *ta-*, *da-*) // *trbb-* 'to provide' (related: *trbb-ẽn-i-* id.; syn. *za-za-*), CM 'hand over' (cf. DLL 131) : Luw *tarawi(ya)-* 'hand over, deliver', Ht *tarrawai-* 'establish, institute, provide with' (: Ht *tarra-* 'be able'; cf. Mil *tere*) // *trei xali* (l. sg.?) 'during three days' (?) in texts about libations; cf. *xali* // *trija* (d. or all.) 'for the Three (gods)' (?); cf. *trei*, *trisu*, *tr-pplẽ* // *tri-su* 'thrice' (Lyc *trihu**); cf. *trija*, *trei*, *tr-pplẽ* // *trll()uba* (not yet clear) // *trppala-* 'to replace, repeat' (?); also noun *trppali* (acc., obj. of imp. *tu* 'use, apply, order!'); both in contexts about feasts; to Luw *tarpalla/i-* 'ritual substitute' (DLL 131), also used in Ht // *tr-ppl-ẽ* (g. pl.) 'three-fold', attr. to *qirz-ẽ* 'shares'; cf. *tbi-plẽ* // adj. *trqqñtas-a* 'of Trqqiz' (d. or all.; there is no 'verb *trqqñtasati*'), attr. to *xrbblat-a* 'supply' or sim. (55); cf. acc. sg. *xrbblatã trqqñtasi* 'Trqqiz's supply' (44) // *trujel-i* (d. sg.) 'for victory?-feast', *truijel-e* (d. pl.); scarcely *trujeli* n. sg. 'Trojan' (=Natri); cf. Lyc *truwe-*, *Trusa-*, possibly to IE**treu(s)-* 'to prosper, mature; conclude' (for phonetics, cf. Mil. stem variants */elu-?/xruje* [or */elu-?/xrujes(i)*] 'for feasts' / *xruwasa-z* 'grants (for offerings)' (:Lyc *xruwe-* 'offering stand') // *-tu* 'to him/her' seems not to exist; see next // *tu-*, *tu-s-* 'to use, apply, order' (also Lyc) to Lyc *tuwe-* 'to place', etc. (DLL 74); cf. *ta- / da-* (all from Anat / IE) // *tube-* 'strike, punishment' (noun in instr. *tube-di*), vb. *tubi-di* in '(Trqqiz) will strike / punish' (Lyc *tub(e)i-*, DLL 132); Anat / IE // *tul-* in *tulijew[-i]* (d. sg.) 'to assembly' (<**tuliya-war*), adj. *tulije-li-* 'of assembly' (to Ht, Luw *tūliya-* 'assembly' < Anat **tūliya-* 'multitude'), vb. *tu-tl-* < **tu-tul-* 'multiply / magnify' (with acc. obj. *neiz ... tuwiz* 'purification rites'?) < IE **tu-twel-* 'swelling' (Pok. 1081) // *tunewñni* (title of Lyc. rulers?) // *tus-* see *tu-* // *tuta-si-z* 'kinsmen' (voc. pl.), to d. or all. *<t>uta* (written *zuta*) 'kin' (of Pixre, 55) to IE **teutā* 'people, country' or sim. (:Ht *tuzzi-* 'army, common people') // *tutltu* see *tul-* // *tuweme-* 'offering' (cf. *tuwi-*, *tu-*), not 'building' // *tuw-i* (d.-l. & acc. sg.) 'offering rite / feast' (also Lyc); acc pl. *tuwi-z*, adj. *tuwije-* (cf. DLL 133); not 'country'; see *tu-*, *tuweme-* // *tuxara-* 'fumigation' (or sim.) to Luw *tuhhara-* (< IE**dh(e)uH-* 'smoke'); syn. Mil noun *lusa-** (preserved in adj. *lusasi & lusalija*), stem *kup-* (in *kup-ttl-e*), all in offering-related contexts.

u- (preverb, Ht *u-*) preserved in *u-ni-* 'bring; pursue' (opposed to **pe-* in */pẽni-/*), *u-d-r-ñt-* 'bringing', etc.; cf. also *ut-e* (?), *u-te-tu* (?), *u-ta-kija* (?), *w-ije-dri* (??) // *ub-e* (d.-l. pl.), *ub-ẽ* (g. pl.) 'grants, dedications'? to Lyc *uba-* 'grant, offering', Lyc vb. *ube-* 'dedicate, offer', Luw vb. *upa-* [uba-] 'furnish, grant' (DLL; CLL) // *ubr-e* (d. pl.) 'during libations'? (<**uwa-war* [=Luw. 'drinking']) < IE **eg^{w}h-r-* 'drink' > *abra-la* [libation for Trqqiz ?], cf. *uwa/e-* 'to drink, toast'?, inf. *ewẽne* 'to drink' // *udrñt-e* (noun in d.-l. pl.?; not a vb.) 'at [or during] deliveries /

bringings' (note Mil *udrñt-* vs Lyc *padrãt-* (?)); *u-d-r-ñt-* to Ht *uda-* 'bring (here)' vs Mil *pa-d-r-e-* 'deliver, present' to Ht *peda-* 'carry' (altern.: *udr-ñt-* to 'water' (DS)) // *uguwãmã* (prtcple, acc. sg., attr. to *armpã* 'Arma-Trqqiz') 'weakened, suffering'? to IE **waH- / *uH-* 'need, lack, disintegrate' (?) // *ulaxadi* 'with / from strikes', syn. to *laxadi* // *umrgga-* (name in adj. acc. *umrgga-z-ñ*) = Lyc *humrxxa* < *Humarga (Amorges); for phonetics, cf. *erikle* // *u-ni-* 'to bring; pursue' in *n(e) uniti* 'doesn't bring / deliver' + acc. *xruwasaz* 'grants (for offerings)'; imp. *uni* 'persue (tribute laws toward / till abundance, *tẽp-e*)', to Ht *u-nna-*, *u-nniya-* 'bring, lead, drive' vs Mil *pẽni-* (written *pẽli-*) 'drive (to ... for ...)' (itr.) to Ht *pe-nna-*, *pe-nniya-* 'drive there' // *uple-si-* adj. (attr. to 'Tuburans' = Lyc allies in battles) with a 'positive' meaning; either to Luw *uppa/i-* 'bring' (*uple-si-* 'providing [spoils?]') or [less likely] to HtL *up-* 'up', etc. (cf. DLL 133) // *ura-sla-* 'great offering / honoring' (cf. DLL 133): d. sg. *ura-sl-i*, d. pl. or all. *ura-sl-a* (not n.-acc. pl.) // *urt(t)u-* (adj. also *urtu(wa)-*) 'quota' or sim. (not 'great', not to *ura-sla-*), to Luw *warta(i)-* 'turn' < IE **wer-t-* id. > Engl *worth*, Germ *Wert*, etc. (used in acc.: *urtu qelideli* 'harvest quota'?, *urtu mrssxã* 'quota / tax cheater', acc. pl. *urtuwãz marãz* 'quota laws / rules'); cf. Lyc PN *urta-qija-* (from Mil ?) // *uta-kija* 'for yearly payments' (?) (stem *kija* to *ki-ki-*), or 'for payments (*kija*) for bringings / spoils (*uta*)' (+ g. pl. *qirzẽ* [not n.-acc. pl. nt.] 'of ... shares'); cf. *ute-ta-*, *ta-* // *ut-e* noun (not a vb.) in d.-l. 'for a year' (also in compounds, see *mqr-*), to Ht *witt-i* 'in the year', or 'for delivery' (*u-* as in Ht *u-da-* 'bring here'); cf. *ute-ta-* and *uta-kija* // *ute-ta-* 'yearly levy / payment', or 'tribute delivery', to *ute* and *ta-*; cf. *uta-kija*; *ñte-te* // *uteñneri* see *ut-e* and *ñneri* // *uwa-*, *uwe-* 'to toast' (: Luw *u-* 'to drink'), scarcely 'vow', 'see' or 'praise'; cf. *ewẽne* (inf.) to drink', *ubr-e* (d. pl.) 'for libations' (?), to IE **eg^{w}h-* 'to drink' // *uwa-di* (instr.) 'with a bovine' (also Lyc), *uwadra* (acc. coll.) 'bovines', cf. Lyc *uwadra-*, *wawadra*; to Anat / IE *g^{w}eu-* 'cow', etc.; different: *uwedri* // **uwe-* 'see' (?) in Xerẽi's epithet *ñt-uw-it-ẽni*, to Lyc *ñt-uweri-ha* 'to commanders' or sim. (opposed to *zxxaza* 'to warriors'), lit. 'overseer, inspector', or sim. (?); cf. Ht *au-s- / uwa-* 'see' // *uwedr-i* 'for all [gods]' (d. sg. coll.); pl. *uwedriz* 'all' (attr. to 'gods'), borrowed from Lyc *huwedri-* id. < **suwa-dar* 'plentytude'.

warasije-z (acc. pl.) 'invited ones'? (cf. *wirasaja(ja)* and *weri*) to Ht vb. *weriya-* (iter. *werisk-*) 'summon, call, invite' < IE **wer-* 'speak formally' ? // *waxs(s)a-* 'war(rior)s', *waxs-i* d.-l. sg. coll.; cf. *wixsa-ba* 'military' (adj. to *laba* 'takes', acc.), to IE vb. **waH-* 'strike, wound' [less likely: to Ht *wahh-*, *weh-* 'to spin, pivot, stride', etc. (iter. *wehesk-* 'patrol', vb. noun *wahessar* 'swing') from IE **waH-* 'turn'] // *welpu-* 'to set hopes on' (vb. *welputi*, prtcple *welpumi*; based on vb. noun **welp-uwar* ?) to IE **welp-* id. (LIV 621) // *wesedi* (instr.) 'with goods /goodies' to Luw *was-* 'be pleasant', *was-u-* 'good', etc. // *wesñte-li* 'of Wesñte', to Wesñte-Phellos; same: Lyc *wehñte-zi* to Wehñte (Dll 79-80 & 134) // *weri* 'supervisor? (of drinks / libations: g. pl. *sukrẽ*)', possibly to Ht vb. *weriya-* 'summon, call'; see *warasijez* and

wirasaja(ja) // *wijedri* 'authority, command' (acc. sg. coll.); cf. Ht vb. *wiya- / u-iya-* 'send; chase', opposed to *piya-* 'send there / away', cf. Mil *pije-* 'give' in 3rd p. pres. *pije-ti* 'gives' & imp. 1st p. *pije-lu* (DLL 124) // *wirasa-ja* or *wirasaja-ja* (d. pl. or all.; not acc.) 'among invited (guesrs)'? (about offerings / libations for nymphs), cf. *warasijez* (id., acc. pl.) and *weri* // *wisi-* 'to impose (levy)', d.-l. sg. coll. *wis-id-i* 'for enforcers', to Luw *wis(a)i-* 'to press' // *wixsaba* 'military' (acc., attr. to *laba* 'takes', syn. *lajata*), related to *waxs(s)a-* 'war(rior)s' // *wzza ijesi* (2 words), possibly a reference to some rite.

xab-a 'for (emotional) attachment' to Ht *hapanzuwant-* 'obedient', *hapanzuwai-* 'be trusted, dependable' (from Luw.), Luw vb. *hapi- / hapai-* 'bind, attach to'; cf. *xapa-* (in *xapaxi*), vb. *xba-* // *xali* 'day'? (:HrL *hali-*) in d.-l. sg. *trei xali* 'during 3 days'? (about feasts and libations, once with *tri-su* 'thrice') // *xãzbi()tuminesi* (city names; DS: */xãtbi/*) = Lyc *xãkbi()tuminehi* 'Kandyba [and] Tymnessos' // *xba** 'Hebat' in acc. *xba-lada-* 'Lady Hebat' (?) // *xba-* 'to bring, attach', etc. in *xbade*, *xbati* (:Lyc *xbati* with acc. *zum̃mẽ* 'evil'), see *xab-a*, all to IE **Habh-* in Greek words for 'touch, handle, grasp, engage' (HED 3 118-9) // *xbadiz* (pl.) 'vallies; Lycians', adj. *xbada-si-* directly to HrL */hapata-/* 'valley' (:Ht, Luw *hapa-* 'river'); but *xbade* (2x) is a non-related verb, see *xba-* // *xerẽi** (name Xerẽi; appears only in Lyc, probably to Ht *hara(n)-*, *harani-* 'eagle' < IE **Horon-* id.), Lycian ruler after [his elder brother ?] Xeriga; Xerẽi appears in Mil as *ẽnari*, *zrẽtẽni*, *ñtuwitẽni* and speaks on many occasions in the 1st person // *xeriga* (name Xeriga), Lycian ruler before Xerẽi (probably, Xerẽi's elder brother) // *xezm̃* may match *qezm̃mi* (DS, cf. DLL 135 **xezme/i-* [but this is phonetically impossible]) // *xi-* '(to) sacrifice', iter. *xi-s-* (both also in Lyc; DLL 135); noun *xi* (d.-l. sg.) 'at / to the feast', cf. *xapa-xi*, a feast (?), cf. Lyc *uwadra-xi* // *xidrasadi* see *qidrasadi* // *xixbati* = *xi* (d.-l. sg.) and *xbati* (vb., see *xba-*) // *xina-s-i* (adj. in d.-l. sg.) to *xi* 'feast' (?), hardly = *xña-si* to *xña-* 'mother' (as in DLL) // *xlusa-* 'quarrel, skirmish' (:Ht *halluwai-* id.), syn. *terble-* // *xñnije* (adj. l. pl.) 'of grandmothers' (to Lyc *xña-hi-*), attr. to *ñtada* 'tombs' ? // *xñtaba-* 'ruler, administrator' (with Mil suff. *-ba-*, cf. *pas-ba*, *wixsa-ba*), *xñtaba-si-* 'of the ruler'; there is no vb. *xñtabatu* (see *tu-tl-*), cf. *xñtawaza* // *xñtawaz-a* (d. sg.) 'rulership', DS: *xñtawa<t>a* =Lyc *xñtawata-* id., to Lyc *xñtawati-* 'ruler, king', cf. DLL 83 (from Anat / IE) // *xra-* 'hold, keep' (:Ht *har-*) with acc. obj. 'nymphad; troops; provision' + 'for / in …', hardly 'offer' (DLL 136) and thus not to *xruwasa-z* (some stuff for fumigated offerings), Lyc *xruwe-* 'offering stand' (:Ht *harra-* 'crush, chip', etc.) // *xrbblata-* 'supply / supplies' (of /for Trqqiz) to Ht *harpa(li)-* 'heap, stack, pile', vb. *harp(ai)-* 'assemble, stack / pile up' // *xruwasa-z* (stuff for fumigated offerings) (acc. pl., as */anaz/* 'treats') to Lyc *xruwata* 'votive offerings', *xruwe/i-* 'offering stand' (DLL 84-5 & 136), possibly to Ht, Luw *harra-* 'crush, chip, grind' [cf. underlying meaning of other words for 'offering /feast': *mruwasa-* (to *marra- / marha-*); *qezmm̃i*, *qñza*, *ekãnẽ*]; rather not to vb. *xra-* which seems to mean 'keep' // *xum-ala* (n. sg., some official; build as *zaj-ala* 'tax-payer'), possibly to Lyc *hri-*

xuwama 'super-intending'? (DLL 86) < vb. *xuwa-* 'be close to, follow closely' // *xupdi-* 'heap up, gather (people for libations)' (< **xup-id-* ?) to Ht *huppai-* 'heap up' // *xupelija-* (adj., not noun) 'of tombs', attr. to *qlija-* 'enclosure'? (in acc. sg. *qliju xupeliju*) // *xust)i-* vb. 'to rush (something to ...), to prompt / urge' [:damaged vb. *xu[stite]*, not 'noun / adj. *xu[g---]*'], noun *xust(t)i-* 'rushing / promting' (?); possibly related to Lyc *xuwa-* (see sub *xumala*); cf. also Anat **huta-* 'hurry' (> Lyc *xudi-*, *xdda-*); cf. Mil *xuzr-uwãt-* (?), next // *xuzrñt- / xuzruwãt-* 'agile' or sim. (about warriors and gods), possibly to HrL *huisar / huitar* (or to Mil *xust(t)i-* ?) // *xxãti* (vb. or gerund) seems to be incorrect writing for */xrãti/* (DS), see *xra-* // *xzzãtã ... xerigazñ* (acc. sg.) in 'Trqqiz approved? Xeriga's norm / ration for continuity [of offerings ?]', cf. Lyc *xzzi-* 'incise' : Ht *xazziya-* 'strike' < IE **Hat-ye-* (cf. T 1, 231-2; regular shift *z* <**tyV* in Ht and Lyc-Mil) / IE **Hat-* > Luw *hatta-* 'violence' : Lyc *xtta-* 'to harm'; *xzzãta-* certainly can not mean 'Xanthos' (DS): this word (a hapax) appears in an offering-related context which is clearly limited to Xerẽi's actions in the city of Aperlai during his 2nd Lycia journey.

'***zabrala***' see *ñz(e)* and *abrala // [z]aja* (less likely, *[z]ata*) 'taxes, levy', *zajala* 'tax-payer' (+ *pssati* 'pays / delivers regularly' + *sxxaija* 'for / till fill-up'); cf. Lyc *za-s-* 'deliver, furnish' (iter. to *za-**), *zata-* 'tribute'; see *zaza-* // *zaw-a* (all., not n.-acc.) 'for gods'?, cf. Lyd *Saw-*; altern.: *zaw-a ... palaraim-a* 'for *p.*–rites ...' ?? // *za-za-* 'to arrange, provide' (with acc.: troops / objects for offerings), syn. *trbb-*; cf. Lyc *za-**, *zas-*, *zata-* [sub *[z]aja* above] and Lyd *ca-* (<**dya-* ?); note Lyc *zzati(je)-* [<*zaza-ti(je)-** ?] 'pertaining to tribute / offering' (syn. to *zata-*, DLL 88) // *zbal-i* (d. sg.) 'for a feast' (??) to *zb-ala-* (built as *abr-ala-* 'libation'?); to (?) Ht, Luw *zuwa-* 'food' (: Lyc *zuwi-* ?) // *zẽn-a* (d. or all.) 'for (fumigated, *lusalija*) offerings / feasts' (?), possibly to Ht *ze-* 'to cook, roast' < IE **tyō-* id. [it may be related to **tī-* 'burn' (after Kloekhorst) > Mil *tije*, *tike*, etc. ??] // *zi-* (root; nominal stem) 'provision, delivery, portion?' (see also vb. *ziu* 'I'm providing' < *ziju** to *zija-**) in d.-l. sg.: *ziti* 'delivery' or 'offering-rite / feast' (: Lyc *uha-ziti*), *ziwi* (/ *ziwala-*) 'delivery, share' (stem **ziyawa(r)* ?), n. sg. *de-zi* 'libation (delivery)'??; also *zi-(e)rẽple* 'provision / share supplies' (:*erẽpli* 'supply'), *zi-(e)reime* (:*ereime* 'levy'), *zi-psse* 'share-payment' (see *psse-*); cf. *zaja*, *tiu*, *ta-*; note Lyc *dde-ze-* 'set aside' (??), *ze-* 'assign a share to' (??) (DLL 10 & 88), possibly also (*ẽti*) *zehi* // *zina-s-e* (d.-l.) 'for *z.*-officials' or 'during *zina*-rite(s)' (<**zinassar* ?), to d. sg. *zin-i* 'for *z.*-rite' (?), see *zi-*; altern.: to *zẽna* 'offering / feast' (root *ze-* 'cook, roast') ? // *zi-u* (< *zij-u**) 'I'll provide / award (troops with ... for ...)': vb. *zija-** 'provide (somebody with something)'; *ziu* is not a noun; cf. d. sg. *ziw-i* to **ziya-war* ('delivery' as process ?); acc. *ziwalã* // *ziwalã* acc. sg. 'provision' (governed by *xra-* 'keep' in Pixre's last will), cf. d. sg. *ziw-i*, vb. *zi-u*, stem *zi-* // *zm̃p-* vb. ('approve', or sim. + acc. *xzzãtã* 'ration' + d. *eset-i* 'for continuity' ?); hardly to *sm̃m-* (cf. Mil. prtcple *sm̃mẽte*); action by Trqqiz // *zm̃pra* (acc.; pendant to *abrala ... aãla*) some treat (for gods), cf. Ht *zammuri*-bread (or to vb. *zm̃p-* ?) // *zppl-i* (d.-l. sg.) 'offering stand' or sim., mostly in connection with Trqqiz who gathers warriors at *zppli*

for a feast (44c); for whom meals are prepared (55), etc.; cf. Luw *zappal-alla/i-* 'caretaker of the *zappal-**', *zappal-alla-*
(an object related to meal preparation); cf. also vb. *zappa-* which denotes a destructive action (CLL 278); *zppli* may easily be tied to offering / feast preparations // *zrbbla-* 'additional stuff / spoils'[?] (added to *laGra-*) used in offerings / feasts; for *zrbb-*, cf. HrL *sarwa-* 'increase'[?] and / or Ht *sarwa(i)-* 'to sack, plunder, loot' : *saru-* 'booty, plunder, spoils' (:Luw *saru-s-* id.) // *zrẽtẽni* 'protector' to Lyd *sarẽta-* 'protector' < **ser-* 'watch, protect' (LIV 483) // *zri-q/ga-la-* 'split-up (of spoils)', possibly to Ht vb. *sarriya-* 'split, distribute' ? (cf. 'suff.' in Mil vb. *etr-qqi-* < **etri-qi-* ?); hardly to Lyc *hri-*, Luw *sari-* 'up' (:Mil *seri-*) // *zrppedu* 'Sarpedon' (god) is certainly acc. (see sub *ni*) // *zrqqi-* 'to loot (produce from supplies)' [< 'disembowl, evisecrate'; cf. 'to gut'] < **sarhwiya-*, to Ht *sarhuw-ant-* 'belly, entrails', *sarhunt-alli-* 'in a manner of a robber' (if related) // *zuse* 'Zeus(-Trqqiz)', d. *zus-i*; from Greek // *zuta* see *<t>uta, tutasiz.*

ABBREVIATIONS

LANGUAGES: Anat = Anatolian // Car = Carian // HrL = Hieroglyphic Luwian // Ht = Hittite // IE = Indo-European // Luw = Luwian // Lyc = Lycian // Lyd = Lydian // Sid = Sidetic

LINGUISTIC TERMS: abl. = ablative // acc. = accusative // adj. = adjective // adv. = adverb // all. = allative // attr. = attribute // c. = common gender // coll. = collective // d. = dative // d. eth. = dativus ethicus // DN = divine name // inst. = instrumental // l. = locative // n. = nominative // nom. = nominal // nt. = neuter // obj. = object // pl. = plural // PN = personal name // prev. = preverb // sg. = singular // subj. = subject // syn. = synonym // t. = tantum // vb. = verb(al) // voc. = vocative

PERSONAL COMMUNICATION WITH: CM =H.C.Melchert // DS = Diether Schürr

DICTIONARIES

CLL = H.C.Melchert, *Cuneiform Luvian Lexicon*, Chapell Hill N.C., 1993
DLL = H.C.Melchert, *A Dictionary of the Lycian Language*, Beech Stave Press, Ann Arbor - New York, 2004
GL = G.Neumann, *Glossar des Lykischen*, überarbeitet von J.Tischler, Harrassowitz, Wiesbaden, 2007
HED = J.Puhvel, *Hittite Etymological Dictionary*, Mouton Publishers, 1984 [and on]
HEG = J.Tischler, *Hittite Etymological Glossar*, Innsbruck, 1983 [and on]
Kloekhorst = A.Kloekhorst, *Etymological dictionary of the Hittite inherited lexicon*, Leiden /

Boston (Mass.), Brill, 2008

LIV = H.Rix et al., *Lexikon der indogermanischen Verben*, L.Reichert Verlag, Wiesbaden, 1998

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Stop Correspondences in Nostratic[1]

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Translated by Maria Polinsky

Introduction. Following Holger Pedersen[2], we identify as Nostratic a number of remotely related language families of the Old World. The relationships between the families can only be objectively studied provided the parent languages the respective language groups descend from are known. Latest developments in a number of fields of comparative linguistics have resulted in reliable reconstructions of several of these proto-languages.

This paper presents some comparisons drawn between six reliably reconstructed families of the Old World: Altaic, Uralic, Dravidian, Indo-European, Kartvelian, and Hamito-Semitic[3]. The similarities between these language groupings (obtained through the analysis of the proto-languages) indicate unequivocally their genetic relationship[4]. The number and the regular nature of these similarities make it possible to outline the comparative phonology of the Nostratic.

Below an attempt at a fragment of such phonology is presented, namely reconstruction of the stops. The reconstruction follows the conventional procedure: first etymologies are selected which allow us to establish regular series of phonetic correspondences (i.e. regular series of the reflexes of the reconstructed proto-phonemes). Thus the original phonemic inventory of dental, velar, postvelar, and labial stops is obtained. In the analysis of the reflexes, two basic positions are taken as relevant for each proto-phoneme: a) the word-initial position, b) the non-initial intervocalic position (here the vowels of the first and second syllable, within the originally bisyllabic root, are meant). Reflexes of the non-initial stops preceded or followed by a consonant are not considered here, for it seems appropriate to classify them with combinations of consonants. The main section of this study is preceded by a short description of the stop

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[1] Sootvetstvija smyčnyx nostratičeskix jazykax. *Etimologija 1966*: 304-355, 401-404. (Published in 1968.)

[2] H. Pedersen. Türkische Lautgesetze, ZDMG 56 (1903): 560.

[3] Apparently, the six respective reconstructions differ in reliability; the Hamito-Semitic and Altaic systems are particularly incomplete. Nevertheless, a general outline, which also includes the two least documented proto-languages, is now available (this refers, in particular, to the respective consonantal properties that are our major concern in this paper). The skeptical attitude towards the notion of Proto-Altaic, as expressed by a number of scholars, is not shared by the author of these ideas. The regularity of the Altaic correspondences uncovered in the comprehensive grammars of G. Ramstedt and N. Poppe, as well as the number of correspondences, provide evidence against the skepticism.

[4] Our main concern here is lexical similarities, other than shared cultural vocabulary because cultural terms and descriptive forms (onomatopoetic words and specimens of sound symbolism) are commonly borrowed.

systems and functionally similar systems of spirants in the languages under comparison (to be more precise, in the above listed proto-languages). In the concluding section, anomalous cases are discussed, the reconstruction of the original stop system is presented, and its structure and evolution in individual languages are traced[5].

Stop Systems in the Languages under Comparison

The Altaic stop system is characterized by the tripartite distinction according to the closure. This distinction can be interpreted as the opposition of the voiceless fortis – voiceless lenis – voiced stops. The opposition is actually obtained for the dentals and velars in the word-initial position; it is partially neutralized in the non-initial position, where the voiceless fortis do not occur. In the labial series, the respective voiceless fortis only occurs in the initial position, while the voiceless lenis is found only non-initially, which indicates the allophonic distribution of these sounds.

	Labial	Dental	Velar
Voiceless fortis	pʿ-	tʿ-	kʿ-
Voiceless lenis	-p-	t	k
Voiced	b	d	g

[5] In the paper, the following symbols are used: X-, -X- and -X denote respectively the initial, non-initial and final positions of the phoneme (allophone); Ø denotes zero sound; :C (or : Ø) denotes lengthening of the preceding vowel: ʌ denotes unspecified vowel. The abbreviations used are the same as in our paper "Материалы к сравнительному словарю ностратических языков" (Этимология. 1965). The reconstructions presented in this paper are illustrated by few examples, though these examples are sufficient enough to prove the suggested phonetic and semantic correspondences. For references, only the most comprehensive and representative collections of the relevant language data have been selected. Two ways of introducing reference in the text are used: 'see' indicates that the reconstruction given in this paper is generally similar to that given in the reference, while 'cf.' indicates that there are certain differences in the reconstructions (these may be phonetic, semantic, or differences in the documentation). The comparative studies of different language groups are listed in out work "Материалы к сравнитель-ному словарю иосмратичмских языков".

Altaic stops: reflexes in daughter languages[6]

Alt.	Tungus			Mongol.	Turkic			Kor.
	Evenki	Nanai	Manchu	Lit. Mongol	Turkish	Tuva	OTurk.	
*p'-	h-	p-	f-	Ø-	Ø-	Ø-	Ø-	p-
*-p-	-w-, -p-	Ø-, -p-	-Ø-, -p-	-g-, -g-, -b-	-p-, -b-	-v-	-p-	-ph-
*b	b- -w-	b- -Ø-	b	b	b-, p- -v-	b-, p- -v-	b	p- -b-, -w-
*t'-	t-	t-, c-	t-, c-	t-, č-	t-, d-	t-, d-	t-	t-
*t	d	d, ʒ	d, ʒ	d-, ǯ- -t-, -č-	d- -t-, -d-	d	t	t- -th-
*d	d	d, ʒ	d, ʒ	d, ʒ	y	č- -d-	j- -δ-	t- -d-
*k'-	Ø-	x-	Ø-	k-, q-	k-, g-	x-, k-	k-, q-	k-
*k	k	k- -Ø-	k	k, q	g- -k-, -ğ-	k- -g-	k, q	k- -kh-
*g	g	g- -Ø-, -w-, -j-	g- -Ø-, -w-, -j-	g, ɡ	k-, g- -ğ-	x-, k- -g-	k-, q- -g-, -g-	k- -g-

* * *

In Uralic, a ternary distinction of stops by the closure is reconstructed for the non-initial intervocalic position. For the velars, dentals, and labials, the opposition of the geminate voiceless, single voiceless and voiced spirants (the labial voiced spirant *-β- coalesced with the sonant *w, which also occurred in the initial position) is found; thus the spirants prove to be directly related to the stop subsystem. The opposition is fully neutralized in the word initial position where only single voiceless stops occur.

	Labial	Dental	Velar
Geminate voiceless	-pp-	-tt-	-kk-
Single voiceless	p	t	k
Voiced spirants	(-w-) < *-β-	-δ-	-γ

[6] For details, see the respective sections in the following compartive grammars: Ram., Poppe, Cinc., Benzing, Poppe Mong., Räsänen Mat. for the reconstruction of the ternary distinction of the dentals and velars see V. M. Illič-Svityč, Алтайские дентальные: *t, *d, *δ. Вопросы языкознания 6 (1963): 37-56; id. Алмайские гуттуральные: *k, *k', *g. Этимология. 1964, Moscow, 1965, 338-343.

Uralic Stops: reflexes in daughter language[7]

Ural.	Baltic Finnish	Lapp Norwegian dialect	Mordvin	Mari	Permian Komi	Ugric Hung.	Samoyed Selkup Nats-pumpi
*-pp-	-pp-~-p-	-p'p-~-pp-	-p-	-w-, -p-	-p-	-p-	-pp-~-p-
*p	p- -p-~-v-	b- -pp-~-b-	p- -v-	p- -w-, -Ø-	p-, b- -Ø-	f- -v-	p- -pp-~-p-
*-w-	-v-	-vv-~-v-	-v-	-Ø-	-Ø-	-v-, -Ø-	-Ø-
*-tt-	-tt-~-t-	-t't-~-tt-	-t-	-t-	-t-	-t-	-tt-~-t-
*t	t- -t-~-d-	d- -tt-~-đ-	t- -d-	t- -δ-	t-, d- -Ø-	t- -z-	t- -tt-~t-
*-δ-	-t-~-d-	-đđ-~-đ-	-d-	-Ø-	-l-, -Ø-	-l-	-r-, -t-
*-kk-	-kk-~-k-	-k'k-~-kk-	-k-	-k-	-k-	-k-	-kk-~-k-
*k	k- -k-~-Ø-, -v-	g- -kk-~-g-	k- -v-, -j-	k- -Ø-, -j-	k-, g- -Ø-	k-, h- -v-, -Ø-	k- -kk-~-k-
*-γ-	-:Ø-	-(:)kk-~-g-	-v-, -j-	-Ø-	-Ø-	-v-, -Ø-	-Ø-

* * *

Like Uralic, Dravidian has only single voiceless in the word-initial position. In the non-initial position, it follows the binary closure distinction, namely, geminate voiceless versus single voiceless (in the Proto-Dravidian already, the spirantized and voiced *-p- coalesced with the spirant *v, which occurred in the initial position). The distribution of the two types indicates, however, their allophonic nature, the geminate allophones limited to the root final position (before the original non-derivational *-u), and the single voiceless (with -v- < *-p- in the labial series) occurring in the intervocalic position under the attachment of vowel-initial verbal affixes to the root. In such environments, many cases of the geminate/single stop alternation have been retained. The intervocalic position, therefore, has just one series of stops, with geminate and single allophones. The geminates seem to be primary here, their shortening in the intervocalic position occurring much later. Hence, for Proto-Dravidian one type of stops can be reconstructed, represented by single voiceless in the initial position and geminate voiceless (> geminates and single voiceless) in the non-initial position. In the initial position, three general stop series are observed (labials, dentals, and velars), while

[7] For details, see the respective sections of the Uralic comparative grammar (Coll.). Cf. B. Collinder, Introduktion till de uraliska språken, Stockholm, 1962; J. Szinnyei, Finnisch-ugrische Sprachwissenschaft, 2 Aufl., Berlin, 1922; id., Magyar nyelvhasonlítás, 7-k kiadás, Budapest, 1927.

the non-initial position allows for a fourth series, that of cerebrals, which in other terminological systems, are called cacuminals or upper apicals.

	Labial	Dental	Cerebral	Velar
Geminate voiceless	-pp-	-tt-	-ṭṭ-	-kk-
Single voiceless	(-v-) < *-p- p-	-t- t-	-ṭ-	-k- k-

Dravidian stops: reflexes in daughter languages[8]

Drav.	South Drav.		Central Drav.				North Drav.	
	Tamil	Kannada	Telegu	Parji	Kui	Gondi	Kurukh	Brahui
*-pp-	-pp-	-pp-, -p-	-pp-, -p-	-pp-, -p-	-pp-, -p-	-p-	-pp-, -p-	-p-
*-v-	-v-	-v-	-v-	-v-	-v-	-w-	-b-, -v-	-f-, -v-
*p-	p-	p-, b-	p-, b-	p-	p-, b-	p-	p-	p-
*-tt-	-tt-	-tt-, -t-	-tt-, -t-	-tt-, -t-	-tt-, -t-	-tt-	-tt-, -t-	-t-, -tt-
*-t-	-t-	-d-	-d-	-d-	-d-	-d-, -dd-	-d-, -th-	-d-
*t-	t-	t-, d-	t-, d-	t-	t-, d-	t-	t-	t-
*-ṭṭ-	-ṭṭ-	-ṭṭ-, -t-	-ṭṭ-, -t-	-ṭṭ-, -t-	-ṭ-	-ṭṭ-, -t-	-ṭṭ-, -t-	-ṭ-
*-ṭ-	-ṭ-	-ḍ-	-ḍ-	-ḍ-	-ḍ-, -ṛ-	-r-, -rr-	-ṛ-	-r-, -rr-
*-kk-	-kk-	-kk-, -k-	-kk-, -k-	-k-	-k-	-k-	-kkh-, -kk-	-kk-
*-k-	-k-	-g-	-g-	-g-	-g-	-g-	-kh-, -k-[1+7a]	-kh-
*k-	k-, c-	k-, g-	k-, g-, c-	k-	k-, g-	k-	kh-, k-	kh-, k-

* * *

In Indo-European, the ternary opposition by the closure type holds for all the articulatory types. Here voiceless, voiced and aspirated voiced stops are opposed (the original phonetic characteristics of the latter are not quite clear). The voiced b in the labial series is quite rare, especially in the initial position. Generally, positional constraints on all the three series are absent in Indo-European, and only combinatorial restrictions are observed; this, voiceless and aspirated voiced do not cooccur within the root, and two voiced stops within one root are too rare. Five series of stops are reconstructed, since along with the labials and dentals three series of gutturals are observed, namely, palatal, velar and labiovelar.

[8] For details, see DED (Introduction); Bh. Krishnamurti, Telugu verbal bases, Berkeley - Los Angeles, 1961 (on the distribution of stop allophones in the non-initial position see pp. 81, 137). For the bibliography of Dravidian comparative phonology, see M. Andronow, Materials for a bibliography of Dravidian languages, Tamil culture 11 (1963): 3-50.

[7a] The plus sign indicates editorial notes (following these notes).

	Labial	Dental	Palatal	Velar	Labiovelar
Voiceless	p	t	ḱ	k	k^{u}
Voiced	b	d	ĝ	g	g^{u}
Voiced Aspirated	bh	dh	ĝh	gh	$g^{u}h$

Indo-European stops: reflexes in daughter languages[9]

IE	Indo-Iran.	Arm.	Anat.	Grk.	Italo-Celtic	Germ.	Balto-Slavic	Toch.
	OInd.		Hitt.	Ion.	Lat.	Goth.	Lith.	Toch. A
*p	p	h-, Ø- -w-	p- -pp-	π	p	f- -f-, -b-	p	p
*b	b	p	p	β	b	p	b	p
*bh	bh	b	p	φ	f- -b-, -f-	b	b	p
*t	t	th	t-, z- -tt-, -zz-	τ	t	þ -þ-, -đ-	t	t, c
*d	d	t	t	δ	d	t	d	t, ś
*dh	dh	d	t	θ	f- -d-, -f-	d	d	t, ts
*ḱ	ś	s	k- -kk-	χ	c	h- -h-, -g-	š	k, c, ś
*ĝ	j	c	k	γ	g	k	ž	k, c, ś
*ĝh	h	ǰ, z	k	X	h	g	ž	k, ts
*k	k, c	kh	k- -kk-	χ	c	h- -h-, -g-	k	k, c, ś
*g	g, j	k	k	γ	g	k	g	k, c, ś
*gh	gh, h	g, ǰ	k	X	h	g	g	k, ts
*k^{u}	k, c	kh	ku- -(k)ku-	π, τ	qu	hu- -hu-, -w-	k	ku, k, ś
*g^{u}	g, j	k	ku	β, δ	u, gu	q	g	ku, k, ś
*$g^{u}h$	gh, h	g, ǰ	ku	φ, θ	f- -u-, -f-	w	g	ku, k, ś

* * *

[9] For details, see K. Brugmann, Kurze vergleichende Grammatik der indogermanischen Sprachen, Strassburg, 1904; A. Meillet, Introduction à l'étude comparative des langues indo-européennes, 7-me éd., Paris, 1931; V. Pisani, Glottologia indoeuropea, 3-e ed. Torino, 1961.

In Kartvelian, three types of stops are opposed by the closure: glottalized voiceless produced with the pharyngeal closure (these, in other terminologies, are called abruptives or pharyngeal stops), simple (aspirated) voiceless and voiced stops. This distinction is observed for labials, dentals and velars. In the postvelar (in other terms, uvular or pharyngeal) series the voiced spirant *γ is found instead of the voiced stop. Structurally, *γ, in some of its occurrences, can be referred back to the voiced postvelar *g, for it combines with the same stops as *g; thus, bγ, dγ, ʒγ, ǯγ are observed parallel with bg, dg, ʒg, and ǯg. For Proto-Kartvelian, the combinations of velar and postvelar (and, possibly, dental) stops with *w can be treated as separate phonemes (labiovelar and labiopostvelar, respectively).

	Labial	Dental	Velar	Postvelar
Voiceless Glottalized	ṗ	ṭ	ḳ	q̇
Voiceless	p	t	k	q
Voiced	b	d	g	(γ) < *g

Kartvelian stops: reflexes in daughter languages[10]

Kartv.	Georgian	Zan		Svan
	OGeorg.	Mingrel	Chan/Khop	
*ṗ	ṗ	ṗ	ṗ	ṗ
*p	p	p	p	p
*b	b	b	b	b
*ṭ	ṭ	ṭ	ṭ	ṭ
*t	t	t	t	t
*d	d	d	d	d
*ḳ	ḳ	ḳ	ḳ	ḳ, c̣
*k	k, c	k, č	k, č	k, č
*g	g, ʒ	g, ǯ	g, ǯ	g, ǯ
*q̇	q̇	ʿ	q̇	q̇
*q	q	x	x	q

[10] For details, see Klimov (Introduction); G. A. Klimov, Опыт реконструкции фонемного сосмава общекартвельского языка-основы, – Известия АН СССР, Отделение литературы и язука 19, 1 (1960): 24-30; K. H. Schmidt, Studien zur Rekonstruktion des Lautstandes der südkaukasischen Grundsprache, Wiesbaden, 1962. On the original *g see: E. D. Polivanov, Классификация грузинских согласныз, Бюллетень Срелнеазиатского Университета 8 (1925): 115-116; S. M. Žgenti, К вопросу о звонком смычном фарингальном в сванском языке, Сообщения АН Грузинской ССР 7, 7 (1946): 485-491; G. S. Axvlediani, Две системы гармонических смычных в грузинском языке, in Памяти акад. L. V. Ščerby, Leningrad, 1951, 113-116. On the labialized phonemes see I. V. Jušmanov, Фонетические параллели африканских и яфетических языков, in Africana. I. Moscow-Leningrad, 1937, 36.

*γ	γ	γ	γ	γ

* * *

The Hamito-Semitic system is largely similar to the Kartvelian structure; thus, it has the same closure distinction of glottalized voiceless, simple voiceless, and voiced stops. The opposition is obtained in the dental, velar, and labiovelar series (according to their reflexes in most Semitic languages, to the emphatic q specifically, the glottalized velar *k and the labiovelar k̓ʷ had more back articulation than their counterparts in the other series). The labials lack the glottalized sound, with two non-glottalized stops reconstructed, a simple voiceless (*p) and, tentatively, a voiceless aspirate (*p_1). Close to the stop system is the postvelar spirant series represented by the simple voiceless and voiced phonemes only.

	Labial	Dental	Velar	Labial	Postvelar
Voiceless Glottalized		t̓	k̓	k̓ʷ	
Voiceless Nonglottalized	p	t	k	kʷ	ḫ
	p_1				
Voiced	b	d	g	gʷ	g

Hamito-Semitic stops: reflexes in daughter languages[11]

HS	Sem.	Egypt.	Berber	Cushitic		Chadic	
	Ar.	OEgypt.	Tuareg	Bilin	Somali	Hausa	Angas
*p	f	p	f	f	f, b	f, 'b	p
*p_1	f	f	f	f	f	f	f-, -p
*b	b	b	b	b	b	b, 'b	p-, b-, -p
*t̓	t̓	d	d̓	d	d̓	'd, t, č	t-, -r
*t	t	t	t	t	t	t, č	t
*d	d	d	d	d, z	d	d, j	t^{2+}
*k̓	q	k̓	g	k̓	k̓	k'	g-, y-, -k

[11] A comprehensive comparative phonology of the Hamito-Semitic is so far non-existent. The table is based on the reliable Semitic-Egyptian correspondences presented in the following works: Cohen; Ember; J. Vergote, Phonétique historique de l'égyptien, Louvain, 1945; W. Vycichl, Grundlagen der ägyptisch-semitischen Wortvergleichung, Mitteilungen des Deutschen Archeologischen Instituts, Abteilung Kairo 16 (1958): 367-407. Stop correspondences in other Hamito-Semitic groups have only been partially studied: cf. for Berber: E. Zyhlarz, Konkordanz ägyptischer und lybischer Verbalstammtypen, ZÄS 70 (1934): 107-122; O. Rössler, Der semitische Charakter der lybischen Sprache, Zass 50 (1952): 121-150; for Cushitic: A. B. Dolgopolsky, Исследования по сравнительной фонетике кушитских языков, I-II, in Языки Африки, Moscow, 1966; for Chadic: W. Vycichl, Hausa und Ägyptisch, MSOS, 3 Abt., 37 (1934): 34-45; J. H. Greenberg, The labial consonants of Proto-Afro-Asiatic, Word 14 (1958): 295-302 (the author reconstructs *p_1); V. M. Illič-Svityč, Из истории чадского консонантизма: лабиальные смычные, in Языки Африки, Moscow, 1966. On the labiovelars see V. M. Illič-Svityč, Древнейшие индоевропейско-семитские языковые контакты, in Проблемы индоевропейского языкозна-ния, Moscow, 1964: 9-10.

*k	k	k, t̲	k	k	k	k	k
*g	ǧ	g, d̲	g	g	g	g	k^{2+}
*ḳ^{u}	q	ḳ	g	ḳu̲	ḳ	k'w	kw-, gw-$^{2+}$
*k^{u}	k	k, t̲	k	ku̲	k	kw	kw-$^{2+}$
*g^{u}	ǧ	g, d̲	g	gu̲	g	gw	kw^{2+}
*ḫ	ḫ	ḫ, h̲	Ø		Ø	Ø, h	
*ɡ	ɡ	ʿ	Ø	ʿ	ʿ, h		

* * *

Methodological remarks. Before the six proto-languages mentioned above are discussed in more detail, it should be mentioned that a large number of correspondences have been considered here where the proto-forms are reconstructable on the basis of just a few closely related languages or even one language within the respective family. For such comparisons, the probability of accidental coincidence will naturally be much higher than for the comparisons involving the proto-forms which were reconstructed on the basis of vaster language data (obtained within a certain family). However, it would be methodologically implausible to altogether exclude the "accidental" cases from the consideration. Any group of genetically related languages is known to be gradually losing the original vocabulary (and its proto-morphemes); thus, the older the proto-language, the larger part of the original vocabulary/morpheme inventory will be likely to be retained by quite a few languages of the family or even by one language. Thus the latent proto-vocabulary, unobservable within the limits of the given language family, is formed. Only by means of a deep comparison, involving language data from the genetically related groupings, can the original proto-forms of this type be uncovered. For instance, some Russian word, whatsoever original (i.e. uninterpretable as a borrowing or a neologism), having no parallels in other Slavic languages, will be useless for the respective Proto-Slavic reconstruction based on inter-Slavic comparisons exclusively. In case such an isolated word has parallels in some non-Slavic Indo-European languages, its Proto-Indo-European (and, subsequently, Proto-Slavic) nature can be guaranteed.

Apparently, small language families, the Kartvelian for example, will have a greater latent proto-vocabulary than families having a large number of languages (as Indo-European). It can be a priori assumed that cases will be quite numerous where the Proto-Kartvelian forms would be retained, for instance, in Svan only or in Georgian only. On the other hand, large families with highly divergent coordinate groups formed by closely related languages (as Altaic or Hamito-Semitic), i.e. the languages which either split at a significant time depth or lost some intermediary language (sub)groups, are

expected to have greater latent vocabulary as compared to the families with less divergent languages (as Uralic or Dravidian). This fact explains why entries are quite numerous below when Hamito-Semitic evidence in favor of the correspondence suggested is rendered by Semitic/Cushitic data exclusively of the Altaic family is represented by words from Turkic or Tungus languages only. An important factor, ruling out non-motivated coincidences, is the regularity of phonetic correspondences (as obtained under the reconstruction of the respective proto-language) fitting into a series of other comparisons where the proto-morphemes cam be reconstructed on a more reliable basis.

The statements presented are by no means new for comparative linguistics which has long been using them. In a great number of cases, an apparently Proto-Indo-European form is found to be represented by Gothic as the only Germanic language having it, by Avestan exclusively in the Indo-Iranian group, by Welsh in the Celtic group, etc. Similarly, a doubtless proto-Uralic word can be attested in Estonian only (of all the Baltic languages), in Udmurt as the sole representative of the Permian group, and in Nenets within the Samoyed group, etc. It would be no exaggeration to admit that, were all such cases excluded, regular phonetic correspondences would be unattainable for the majority of highly divergent language families, because of scarce remaining data. It would be especially implausible to exclude all such cases from consideration in a study of Nostratic languages, characterized by extremely high divergence.

Dentals. Three types of phonetic correspondences between the dental phonemes are observed, this indicating three proto-phonemes opposed by the closure type. These are denoted by *ṫ, *t, *d[12]:

	Alt.	Ural.	Drav.	IE	Kartv.	HS
*ṭ	t‘- -t-	t- -tt-	t- -t(t)-/-ṭ(ṭ)-	t	ṭ	ṭ, t[13]
*t	t- -d-	t- -t-	t- -t(t)-/-ṭ(ṭ)-	d	t	t
*d	d- -d-	t- -δ-	t- -t(t)-/-ṭ(ṭ)-	dh	d	d

[12] The choice of these symbols is explained in the final section of this paper.

[13] In Hamito-Semitic, *ṭ is the regular reflex of *ṭ, along with *ṭ, the HS *t reflects this phoneme in the cases where the root has the HS *p, cf. 1.3, 1.13, 1.30, 1.32.

*ṭ

a) in the initial position

1.1. Alt. *t'apʌ- 'soil, dirty (vt)' (Evenki, Ucur-Zeysk tapara 'get dirty', Ilimpeta tapka- 'make dirty') ~ Ural. *tappʌ 'feel by touch, sculpture, shape' (Finn. tapaile- 'feel (touch)', Hung. tapinta- 'feel (touch)', tapaszt- 'shape'; cf. Bárczi 300) ~ Drav. *tapp- 'feel (touch)' (Tamil tappu, Malayalam tappu-; see DED 199) ~ IE *tep- 'anoint, dip' (Arm. t'at'avem 'I am dipping', Lith. tepti 'smear'; cf. Stang NTS 16, 259) ~ HS *ṭp 'besmear, soil" (Arab. ṭufal 'dry clay', Hebr. ṭpl 'soil', Hebr.-Aram. ṭpl 'besmear', Beja ḍif 'paint', Hausa ta'ba 'touch' < *ṭp; cf. Ges. 278).

1.2. Alt. *t'ä or *t'e 'this, that' (Nanai täi 'this', Mogol te 'that', Mong. tere 'that'; cf. Ramstedt Vv. 74) ~Ural. *tä 'this' (Finn. tä-, locative stem; Mordvin Erzja te; see Coll. 62) ~ Drav. *tā-, 3 person pronomial stem (Kannada tān, 3 Sg. reflexive pronoun, Kurukh tān id.; Tamil tām, 3 Pl. reflexive pronoun, Malto tam(i) 'they'; see DED 207, 204-205) ~ IE *to- 'this', neuter stem, masc./fem. oblique stem (OInd. Tad, Nom.-Acc.n., tam, Acc.m., tām, Acc.f. Gr. tó, tón, tén; see Pok. 1086-1087)[14].

1.3 Alt. *t'apa- 'get, find, guess' (Evenki tawa- 'get', Mong. taga- 'guess', Turkmen tap- 'find, guess'; cf. Ram. 49) ~ Ural. *tap(p)ʌ- 'find, appropriate, happen' (Finn. tapaa 'find, meet, find smb. in place', tapahtu 'occur', Udm. tapa 'be appropriate'; cf. Wichmann FUF 15, 51) ~ Drav. *tapp- 'appropriate, fixed time' (Tamil tappu 'appointment, appropriate time', Toda top 'time, convenience'; see DED 204) ~ IE *top- 'get, fixed place, guess' (Grk. τόπος 'place', topáxō 'I guess', Latv. 'stand, occur, get somewhere', see Pok. 1088) ~ HS *tp- 'appropriate' (Old Egypt. tpj 'best', Said Copt. tōp 'get used')[15].

1.4. Alt. *t'ā̃l or t'ēl 'young animal, suckling, young animal suckling its mother and another female animals' (Mong. tel, Kirghiz tel, Yakut tīl; see KW 390) ~ Drav. *taḷ- 'young animals; (give) new shoots' (Tamil taḷir 'give shoots, shoots', Kota tayḷ 'young animals', Telegu taliru 'young plants'; see DED 202-203) ~ IE *teHl- 'young animal, plant' (Grk. τῆλις f. 'mature girl, bride', Ion. τῆλις f. 'shoot (of leguminae)', Lat. tālia 'pod'; see Pok. 1055) ~ HS *ṭl- 'give birth, young animal' (Arab. ṭall 'young sheep, goat, gazelle, etc.', Hebr. ṭālęh 'lamb', Galla ḍal 'give birth', Chad.: Mubi 'dāl 'lay eggs': cf. Ges. 276).

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[14] Cf. Coll. 149 (Alt. ~ Ural.); Collinder IUS 56 (Ural. ~ IE); Dolg. 14 (Alt. ~ Ural. ~ IE).

[15] Cf. Räs. 46 (Alt. ~ Ural.).

1.5. Alt. *t'arʌ- 'scrape, scratch' (Mong. tarmu- 'scrape, scratch', Turkish tara- 'scratch', Turkmen dara- 'scratch') ~ Drav. *taṟ- 'break off (vi, vt), grind, diminish by friction' (Tamil taṟi 'break off, cut off', Kodagu tari 'crumb, cut', Kannada taṟi 'tear off, cut off; rub away (vi)'; cf. DED 203) ~ IE *ter- 'rub' (Grk. τείπο, OSlavic тьрǫ; see Pok. 1071-1072) ~ HS *ṭr- 'grind' (Ar. trr).

1.6. Alt. *t'any- 'know, learn' (Mong. tani, Turkmen tany-; see KW 378) ~ Ural. *tonʌ- 'know, teach' (Mordvin tunado- 'learn', Komi tun 'medicine man'; see Coll. 63) ~ IE *tong-, *tenk- 'know, learn, notice' (Lat. tongeō 'I know', OIceland þekkja 'notice, understand, know', Latvian Kuron. teñcināt 'inquire'; cf. Pok. 1088)[16].

1.7. Alt. *t'ür 'fast, move fast' (Evenki Barguzin turku- 'jump', Mong. tür 'quickly, at once', Uighur türčä id.; cf. KW 415-416) ~ Ural. *türkʌ 'fast, move fast' (Eston. törki- 'jog, trot', Mari Eastern töryə- 'jump', Mansi turex 'at once, quickly'; cf. Wichmann 51) ~ IE *tu̯er- 'fast, move fast' (OInd. tváratē 'hurries (3SG)', turá- 'fast', OIceland. þyrja 'run, rush'; cf. Pok. 1100).

1.8. Alt. *t'y 'thou', oblique *t'yn- (Mong. či, Gen. činu, Mogol či, činai; see Zirni 95-96) ~ Ural. tinä/tynʌ- 'thou' (Finn. Nom. sinä, Komi te/Finn. Gen sinun, Mordvin Nom. ton, Kamas tan; see Coll. 57) ~ IE *tū, oblique *te- 'thou' (Lat. tū, Dat. tibi, OSlav. ty, Acc. tę; see Pok. 1097-1098)[17].

1.9. Alt. *t'i- 'louse' (Evenki tilä- 'delouse', Olča tiktä 'louse') ~ Ural. *täjʌ 'louse' (Finn. täi, Lapp dikˈke, Xanty Vax töγtəm; cf. Coll. 119) ~ Kartv. *ṭiz$_1$- 'louse' (George. ṭil-, Svan ṭiš; see Klimov 181)[18].

1.10. Alt. *t'anu- 'stretch, draw' (Evenki Barguzin tān- 'pull out, stretch', Udihe tan- 'pull off, drag', Mong. tanu- 'tighten knot'; cf. KW 378, Vasil. 386) ~ Drav. *tanṭ- 'pull, pull out' (Parji 'ṭanḍ- 'pull', Gondi tend- 'pull out'; see DED 197) ~ IE *ten-, *tend- 'stretch, pull' (OInd. tanṓti, Lat. tendō; see Pok. 1065-1066).

1.11. Alt. *t'ölgʌ or *t'ülgʌ 'fox, wolf' (Solon tūlgä 'wolf', Azerb. tülkü 'red fox', Uigher tülki id.) ~ Drav. tōḷ- 'jackal, wolf' (Kannada tōḷa 'wolf', Brahui tōla 'jackal'; cf. DED 233) ~ Kartv. *ṭura 'jackal' (Georg. ṭura, Mingrel (n)ṭura, Svan ṭura; see Kipšidze 330).

1.12. Alt. *t'örʌ- 'turn, spin, whirl' (Evenki Ilimpeya turgäl 'whirlpool', Kor. turu- 'circle, spin, whirl'; cf. SKE 278) ~ IE *tu̯er- 'turn, spin, whirl' (Lat. turbō, m.

[16] Cf. Räs. 47; Coll. 147 (Alt. ~ Ural.); Dolg. 14 (Alt. ~ Ural. ~ IE).

[17] Cf. Dolgopolsky's paper in "Вопросы языкознания" 2 (1964): 58-59 (Alt. ~ Ural. ~ IE); Collinder UAJb 24, 15 (Ural. ~ Alt.).

[18] Cf. Coll. 149 (Alt. ~ Ural.); Bouda ZPhon 2, 338 (Ural. ~ Kartv.).

'whirlwind', OIceland. þurla 'whirl', OHGerm. dweran 'turn over, hinder'; cf. Pok. 1100) ~ HS *ṭwr 'turn, spin' (Ar. ṭārat, f. 'hoop, wheel', Berber Sus dūṛ 'spin'; see Cohen 151).

1.13. IE *terp- 'be sated, pleased' (OInd. tr̥p̄yati 'gets sated, satisfied', Grk. τέρπομαι 'I rejoice'; see Pok. 1077-1078) ~ Kartv. *ṭrp- 'take pleasure, love' (Georg. ṭrp-) ~ HS *ṭrp/*trp 'get sated, satisfied' (Hebr. ṭeręf 'nutrition'/Ar. trf 'prosper', turfanun f. 'delicious food'; see Ges. 279)[19].

1.14. Alt. *t'üb 'calm' (Mong. tüb 'calm, balanced', tübsid 'calm down') ~ Ural. *tüwʌ- 'calm' (Finn. tyven 'windless, calm', Xanty Vax toγən 'calm, quiet'; see Coll. 120).

1.15. Alt. *t'yjʌ 'narrow, cramped' (Evenki tija, Even tijākun) ~ Ural. *tijä or *tyja 'narrow, cramped' (Mordvin teja, Nenets tȳje; see Coll. 62)[20].

1.16. Alt. *t'ül'- 'enter, fall' (Buryat tùlgù- 'enter', Turkmen düš-, dial. tüš- 'fall down', Kor. tyr- 'enter'; see Ram. 110) ~ Ural. *tule- 'come, go down' (Finn. tule- 'come', Mari tol- 'come', Selkup Narym töa- 'come', tüa 'go down'; cf. Coll. 63).

1.17. Alt. *t'ürʌ- 'caviar' (Evenki tirāksä, Olča tûrsä, Mong. türisün; see KW 416) ~ Ural. *türämä 'caviar' (Nenets tirēwe, Selkup Ket' term, Koibal thürümä; cf. Castrén 264)[21].

1.18. Alt. *t'öŋä or t'üŋä 'lower end of the trunk, butt' (Mong. tüŋge 'lower end of the trunk', Turkmen töŋŋe 'butt', Kor. tuŋkolgi 'root'; cf. Coll. 149) ~ Ural. *tüŋe 'lower end of the trunk, base' (Finn. tyvi, Mari Eastern tüŋ; see Coll. 120)[22].

1.19. Alt. *t'ar' 'bald' (Mong. tar, Azerb. daz, Tuva ta's; cf. Ram. 111) ~ Drav. *taṛ- 'bald' (Toda taṛ- 'get bald', Kannada 'bald spot, bald'; see DED 203).

1.20. Alt. *t'inä- 'strong' (Mong. činege 'strength', Xalxa činē id.; cf. SKE 267) ~ Drav. *tiṇ 'strong, get strained' (Tamil tiṇ 'strong, hard', Telegu dial. tiṇuku 'get strained', Malto tinqe id.; see DED 208-209).

1.21. Alt. *t'ili- 'swell up' (Mong. čiliji-, Altai Teleut tiš-; see Ram. 108) ~ Drav. *tiḷ- 'boil, boil away' (Tamil tiḷaj 'boil', Malayalam tiḷe- 'bubble, boil out'; see DED 212).

1.22. Alt. *t'āla 'lowland, flat' (Evenki Western tālä- 'smooth out (of hide)', Mong. tala 'lowland'; cf. KW 375) ~ IE *telH- 'flat, low spot; flat' (OInd. talam 'lowland, sole (of foot)', Grk. τηλία 'board', Lith. tìltas 'bridge'; see Pok. 1061)[23].

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[19] Cf. Möller 59, 252-253; Vogt NTS 9, 336-337 (IE ~ Kartv.); Dolg. 15 (IE ~ HS).

[20] Cf. Sauv. 71; Räs. 36; Coll. 146.

[21] Cf. Sauv. 68; KW 416.

[22] Cf. Räs. 25; Coll. 149.

1.23. Alt. *t'anʌ- 'hew, cut' (Mong. tanu- 'cut off', Yakut tanā- 'carve out'; see KW 378) ~ IE *ten- 'chop, beat' (Lith. tìnti, tinù 'whet', Sloven tę́ti, tnèm 'pierce, hew, chop'; cf. Pok. 1063).

1.24. Alt. *t'ök(ʌ)- 'pour' (Turkish tök-, Turkmen dök-, Tuva tö'k, dög-; cf. Räsänen Mat. 58) ~ IE *tek^{u}- 'flow, run' (Avestan tačaiti 'runs, flows', Middle Welsh godep 'refuge', Serbo-Cr. tèčēm '(I) flow'; see Pok. 1059-1060).

1.25. Alt. *t'ajl'a 'stone' (Mong. čilagun, Turkish taš, daš, Turkmen dāš, Kor. tōl; cf. Ram. 49) ~ Kartv. *ṭal- 'flint' (Georg. ṭal-).

1.26. Ural. *tunk(k)ʌ- 'push, force, squeeze into' (Finn. tunke- 'break through, penetrate', tunkka 'stuffy, close', Mordvin toŋga 'put in, stuff in'; see Coll. 120) ~ IE *tu̯enk- 'stuff, press' (OHGerm. dūhen 'press', Lith. tvankus 'stuffy (of air)'; see Kluge 899).

1.27. Drav. *tāḷ- 'endure, tolerate' (Tamil tāḷu, Telegu tāḷu; see DED 206) ~ IE *telH- 'raise, endure, suffer' (OInd. tulayati 'raises, weighs', Grk. τλῆναι 'endure', Goth. þulan 'endure, suffer'; see Pok. 1060-1061).

1.28. Drav. *tikʌl 'horror, torpidity' (Tamil kikil 'horror', Kannada digilu 'horror, torpidity', Telegu digulu 'fear'; see DED 207-208) ~ IE *ti̯eg^{u}- 'withdraw in fear, feel fear' (OInd. tyájati 'withdraws helplessly', Homer. Grk. σέβομαι '(I) fear the gods'; see Pok. 1086).

1.29. IE *tem(H) 'dark' (OInd. timirá-, Middle Irish teim, OSlav. тьмьнъ; cf. Pok. 1063-1064) ~ HS *ṭ(w)m 'dark' (Kefa ṭum 'be dark', ṭúmō 'night', Koyra temā 'darkness', Chad.: Jen dum 'black', Wandala 'daŋwe id.; cf. Cerulli St. 2, 22).

b) in the non-initial intervocalic position

1.30. Alt. *pütʌ 'hole' (Mong. ütügün, Middle Mong. hütgü 'vulva', Shor üt 'hole'; see KW 460; Zirni 142) ~ Drav. *pott- 'hole' (Tamil pottu 'hole', Kui poth'nai 'make holes'; see Burrow, Bhattacharya IIJ 6, 239) ~ Kartv. *puṭ- 'hole' (Svan piṭ, puṭu) ~ HS *pwt/pwt 'hole' (Hebr. pwt 'vulva', Somali futo 'anus'/Galla fuǯi 'vulva', Hausa 'būtīyā 'anus' < *pwṭ; cf. Cohen 171).

[23] Cf. KW 375.

1.31. Alt. *suty- 'beat' (Evenki sutygā- 'knock out, kick out') ~ Ural. *sōttʌ 'beat, hit' (Komi sẹt-, Komi Yazvin süt-, Hung. üt-, it-; see Coll. 121) ~ Drav. *cutti 'hammer' (Tamil cutti, Telegu sutte; see DED 171).

1.32. Alt. *patʌ 'field' (Kor. pat 'field', pathai 'in the field', Kirghiz atyz 'cornfield'; see Ram. 53) ~ IE *petH- 'spread, extend (vi, vt)' (Avest. paθana- 'broad, spacious', Lat. pateō 'I stretch, spread out'; see Pok. 824-825) ~ HS *pṭ-/pt- 'spread (vi, vt)' (Hebr. metathesis ṭpḥ 'extend, stretch' < *pṭḥ, Hausa fyā'da 'stretch (vi)'/Ar. fṭḥ 'extend (vt), spread'; cf. Ges. 278).

1.33. Alt. *ötʌ 'old' (Evenki utu, Mong. ötegü, Chuvash vată; see KW 302) ~ IE *u̯et- 'year, old' (Grk. ϝέτος 'year', Lat. vetus 'old', OSlav. vetъxъ 'old'; see Pok. 1175).

1.34. Alt. *ōtʌ 'fire, fireplace' (Evenki otū 'oven, fire', Turkmen ōt 'fire'; cf. Poppe 49) ~ IE *H$^{(u)}$ēt- 'fire, fireplace' (Avest. ātarš 'fire', Alb. votër 'fireplace', Irish áith 'oven'; cf. Pok. 69).

1.35. Ural. *wotta- 'take' (Finn. otta- 'take', Mansi Nižn. Lozva wẹ̄t- 'pick, gather, collect'; see Coll. 105) ~ Drav. *ott- 'get' (Kui ot- 'bring by force', Kurukh otth^{o}r- 'get, take out'; see DED 72).

1.36. IE *lat- 'moist, liquid' (Grk. λάταξ 'drop', Middle Irish laith 'liquid', OIceland leþja 'clay, mud'; see Pok. 654-655) ~ Kartv. *lṭw- 'soak' (OGeorg. lṭ(w)- 'soften by soaking', Mingrel rṭw- id; see Kilmov 122).

1.37. IE *mat- 'larva, worm' (Arm. mathil 'small louse', Goth. maþa, f. 'larva, worm'; see Feist 349) ~ Kartv. *maṭl- 'worm' (Georg. maṭl-, Svan məṭ-; see Klimov 129).

1.38. IE *at- 'go, year' (OInd. átati 'goes', Goth. aþnam, Dat. Pl. 'years'; see Pok. 69) ~ HS *ḫṭ- 'march' (Ar. ḫṭw 'go, march'; cf. Calice 77).

1.39. Drav. *kuṭ(ṭ)ʌ 'small, short' (Toda kuṭ, Kui gūṭa; see DED 115) ~ Kartv. *ḳuṭʌ 'small' (Georg. Guri ḳuṭa 'boy', Svan ḳōṭol 'small'; see Klimov 118) ~ HS *ḳ(w)ṭ- 'small' (Hebr. ḳāṭŏn 'small', Agau Bilin ḳŭt 'be small'; cf. Cerulli 4, 449).

*t

a) in the initial position

2.1. Alt. *tajʌ- 'bend (vi, vt), lean against smth (vi, vt)' (Manchu daja- 'lean on, support oneself on', Mong. dajibal- 'bow, bend', Turkmen daja- 'lean against, support'; see VJa 1963, 6, 45) ~ Ural. *taje-/toja- 'bend, incline (vt)' (Finn. tai-pu- 'bend, incline (vi)'/Lapp. doaggje- 'bend'; cf. Coll. 61).

2.2. Alt. *täg(ʌ)- 'touch' ~ Drav. *takk- 'touch' ~ IE *deg- 'touch'; see 5.19.

2.3. Alt. *tala- 'wave (hand), flutter' (Middle Mong. dala- 'wave', Middle Turkic Kašgari talbyn- 'flutter', Tuva dalbaj- 'unfold (of wings)'; cf. Ramstedt JSFOu 38[3], 57) ~ IE *del- 'be loose, swing, be pending' (OInd. dulā□f. 'swinging', OScand. tolla- 'hang down swinging'; see Pok. 193-194) ~ HS *tl- 'swing, rock, shake, pend' (Ar. tltl 'shake, rock', Hebr. tăltălīm, Pl. 'locks'; see Ges. 880).

2.4. Ural. *täŋe- 'full, fill up (vi, vt)' (Lapp dievvâ- 'fill up (vi)', Mari tem- 'fill up (vt)'; see Coll. 119) ~ Drav. *taṇ- 'abound' (Tamil taṇi 'abound', Kannada tani 'prosper, develop fully', Telegu taniyu 'prosper'; see DED 197) ~ HS *tm 'full, whole' (Ar. tmm 'be full, whole', OEgypt. tm 'whole, entire', Chad.: Musgoi tem 'all'; cf. Cohen 151).

2.5. Ural. *tōγe- 'give, bring' (Finn. tuo- 'bring', Lapp Southern duokĕ-, Nenets tā- 'give, bring'; see Coll. 64) ~ Drav. *tā- 'give (1 and 2 person), imperative stem (Tamil tā 'give (imper.)', Kannada tā id., Konda tā- 'bring'; see DED 200) ~ IE *doH- 'give', Grk. δίδωμι 'I give', Lith. dúoti 'give'; see Pok. 223-226)[24].

2.6. Drav. *takk-/takʌ- 'fitting, appropriate' (Tamil takku 'fit', Kannada takka 'appropriate'/tagu 'fit'; see DED 192-193) ~ IE *deḱ- 'appropriate, adroit' (OInd. dákṣas 'deft', Lat. decet 'fits, is appropriate', Serbo-Cr. dèsiti 'get, achieve'; see Pok. 189-190) ~ HS *tḳn 'bring into order' (Akkad. taqānu 'ordered', Aram. tqn 'bring into order'; see Ges. 888).

2.7. Alt. *talgʌ- or *tolgʌ- 'wave, be agitated' (Nanai dalan 'flood', Mong. dolgi- 'be agitated', Turkish dalga 'wave'; see VJa 1963, 6, 46) ~ Drav. *tall- 'excitement, (spiritual) turmoil' (Kannada talleṇa, Telegu talladancu; see DED 201).

2.8. Alt. *tür'ʌ- 'pierce, string' (Mong. dürü- 'pierce, insert', Turkmen düz- 'string', Tuva diz-; see VJa 1963, 6, 47) ~ Drav. *tūṛ- 'pass through a hole' (Kannada tūṛ-, Kurukh turd-; see DED 223).

[24] Cf. Coll. IUS 70; Dolg. 13 (Ural. ~ IE); Menges StOFe 28[8], 13 (Drav. ~ IE).

2.9. Alt. *tālu 'shoulder, shoulder-blade' (Mong. dalu 'shoulder-blade', Mongor dālī 'shoulder', Azerb. dal 'back', dial. 'upper part of back between shoulders'; see VJa 1963, 6, 47) ~ Drav. *tōḷ 'shoulder, forearm' (Tamil tōḷ, Kannada tōḷu; see DED 235).

2.10. Alt. *tē- 'say' (Azerb. de-, Turkmen dī-, Yakut diä-; see VJa 1963, 6, 39) ~ Kartv. *txo- 'ask' (OGeorg. txo-, Chan tx(w); cf. Klimov 99).

2.11. Drav. *teṟ- 'tear (vi, vt), burst out, cut' (Tamil teṟi 'tear (vi, vt), burst out', Kannada tiṟi 'cut (off)', Telegu tregu 'tear (vi), break (vi)'; see DED 226) ~ IE *der- 'tear, strip off, burst' (OInd dṛṇātī 'bursts', OEng. teran 'tear', Lith. dìrti 'flay, skin'; see Pok. 206-209).

2.12. Alt. *tel'- 'split, make holes' (Mong. delberkei 'crack, split', Azerb. deš- 'make holes, pierce', Turkmen deš- id.; cf. VJa 1963, 6, 47) ~ IE *del(H)- 'polish, square, split' (OInd. dăláyati 'splits', Grk. δαίδαλος 'worked/polished by man', Lat. dolō 'I polish'; see Pok. 194-196) ~ Kartv. *tal- 'trim, plane' (Georg. tl-/tal-, Mingrel tol-; see Klimov 90-91) ~ HS *tl- 'trim, pierce' (Beja tela 'pierce', Chad.: Marghi tlụ/tlə́ 'trim', tlà 'cut').

2.13. IE *del- 'stretch, long' (OInd. dīrghás 'long', ChSlav. dьliti 'lengthen, prolong'; see Pok. 196-197) ~ HS tlḥ 'long' (Ar. tlḥ 'be long', taliḥ 'long (as of neck)').

2.14. IE *del- 'cunning, mischief' (Grk. δόλος 'cunning', OScand. tāl, f. 'deceit, cunning'; cf. Pok. 193) ~ HS *tll 'deceive' (Hebr. tll).

2.15. IE *deH- 'liquid, drop, flow' (OInd dāñu, n., f. 'dripping water, dew', Arm. tamuk 'humid, irrigated'; see Pok. 175) ~ Kartv. *tx- 'spill' (Georg. tx-ev-/tx-iv-, Mingrel (n)tx-; see Klimov 98).

b) in the non-initial intervocalic position

2.16. Drav. *citʌ- 'ruin (vi, vt)' (Tamil citai, Telegu cidiyu; see DED 163) ~ IE *sḱeid-/skeid- 'split' (OInd. chidrá-/Lith. skíedžiu; cf. Pok. 920-921) ~ Kartv. *c$_1$it- 'chop' (Chan čit-) ~ HS *śtr 'cut, split, destroy' (Ar. štr 'cut, split', Aram. Syr. str 'break through'; see Ges. 795).

2.17. Alt. *ödʌn 'rain' (Evenki udun 'rain', udunän 'it is raining', Negidal udin 'rain'; see Vasil. 431) ~ Ural. *wete 'water' (Finn. vete-, Mordvin ved'; see Coll. 66) ~ IE *u̯ed- 'water' (Hitt. watar, Gen. wetenaš, Grk. υδορ, Gen. υδατος; see Pok. 78-80).

2.18. Ural. *pata 'pot' (Finn. pata, Mari Western pat; see Coll. 47) ~ IE *pod- 'vessel, pot' (OIceland. fat 'vessel'; Lith. púodas 'pot'; cf. Pok. 790).

2.19. Alt. *sodʌ- 'frenzy, shout' (Evenki: Sakhalin sodom- 'be in a rage', Nepa sodomī- 'cry, shout') ~ Ural. śota- 'fight, scold' (Finn. sota 'war', Mordvin śudo 'scold'; see Coll. 115) ~ Drav. *caṭʌ 'scold, frighten' (Kannada jaḍi, Telegu jaḍipincu; see DED 150).

2.20. Alt. *medä- or *mädä- 'feel, tell' (Evenki mädä- 'feel, guess', Manchu mädä 'message', Mong. mede- 'know, decide'; see KW 259) ~ IE *med- 'think, meditate, measure' (Arm. mit 'thought', Grk. μέδομαι 'I meditate', Goth. mitan 'measure'; see Pok. 705-706) ~ Drav. maṭṭ- 'measure' (Tamil maṭṭu, Telegu maṭṭu; see DED 308).

2.21. Alt. *gedä 'back side, back of the head' (Evenki gädumuk 'back of the head', Mong. gederge 'backwards', Turk. Khorezmi kedin 'backwards'; cf. KW 131) ~ IE *ĝhed- 'hind, caccare' (Avest. zaδah- 'podex', Arm. jet 'tail', Middle High Germ. gat 'hole, anus'; cf. Pok. 423).

2.22. Alt. *mudʌ 'end' (Olca mudan, Evenki mudan; see Vasil. 258) ~ Drav. *mūṭʌ 'end up, finish' (Tamil muṭi, mūṭu, Telegu mūḍu; see DED 31) ~ HS *mwt 'die' (Ar. mwt, OEgypt. mwt, Berber əmmət, Hausa mutu; see Greenberg LA 55).

2.23. Alt. *padak 'foot, leg' (OTurk. aδak 'leg, foot', Turkmen ayak 'leg', Kor. padak 'foot, palm; soil'; see Ram. 52) ~ Drav. *paṭṭ- 'foot, step' (Malaysian paṭam 'foot, palm', Telegu paḍi-kattu 'step'; cf. DED 259-260) ~ IE *ped- 'foot, leg' (OInd. Gen. padás, Lat. Gen. pedis; see Pok. 790-792).

2.24. IE *(s)ḱed- 'cover, conceal, clothes' (OInd. chādáyati 'covers, conceals', OHGerm. hāz, m. 'clothes'; see Pok. 919) ~ HS *str 'cover, conceal, clothes' (Ar. str 'protect, cover, wrap up', Hebr. str 'hide', OEgypt. mśtrt 'apron cloth'; see Ges. 553).

*d

a) in the initial position

3.1. Alt. *dul- 'warm' (Even dul- 'get warmer', Mong. dulagan 'warm', Middle Turk. Kašgari jylyγ 'warm'; cf. Ram. 51) ~ Ural. *tule 'fire' (Finn. tuli, Mordvin tol; see Coll. 63) ~ HS dlḳ 'burn (vi, vt)' (Hebr. dlq, Aram. dlq; see Ges. 163).

3.2. Ural. *tuδ'ka- 'point, top' (Finn. tutkaime, Mansi tal'k; see Coll. 120) ~ Drav. *tutʌ- 'point, tip, sharp edge' (Tamil tuti, Kannada tudi; see DED 216) ~ Kartv. *dud-

'tip, top' (Georg. dud- 'tip, cock's comb', Chan dud- 'crown (of head)', top, tip'; see Klimov 75).

3.3. Ural. *taŋe- 'cover, patch up' (Lapp duogˈŋâ- 'patch up', Mordvin tavado- 'cover'; cf. Coll. 9) ~ IE *dhengh- 'cover, dung, manure, press' (OHGerm. tungen 'press to, manure', Lith. deñgti 'cover'; see Pok. 250) ~ HS *dm- 'cover, manure' (Ar. dml 'besmear, manure', Geez dmn 'cover tightly, closely'; see Ges. 165).

3.4. IE *dheH- 'lay, put' (OInd. dádhāmi, Hitt. teḫḫi; see Pok. 235-239) ~ Kartv. *d(w)- 'lay, lie' (Georg. d(w)-, Svan d-; cf. Klimov 72) ~ HS *(w)dḥ 'lay' (Ar. wdḥ, Logone 'də́, Musuk da)[25].

3.5. Alt. *daga- 'follow' ~ Ural. *taka 'rear'; see 5.21.

3.6. Drav. *tūṟ- 'slander' (Tamil tūṟu, Kannada dūṟu; see DED 223) ~ IE *dhu̯er(H)- 'trap by deceit' (OInd. dhū́rvati '(he) traps by deceit', Lat. fraus, Gen. fraudis, f. 'deceit, cunning'; see Pok. 277).

3.7. IE *dheu̯- 'faint, die' (Old West Scand. da 'loss of consciousness', OHGerm. touwen 'die', OIrish duine 'mortal, person'; see Pok. 260) ~ HS *dwj 'be sick, die' (Geez dawaja 'be sick', Hebr. dəwāj 'illness', Galla dua 'die'; Chad.: Angas tu, Mubi dī id.; cf. Leslau 124).

3.8. IE *ĝhdhū (metathesis) 'fish' ~ HS *dg 'fish'; see 6.22.

3.9. Kartv. *dum- 'be silent' (Georg. dum-) ~ HS *d(w)m 'be silent, quiet, sleep' (South Ar.: Sokotri déme 'sleep', Hebr. dūmā 'silence', dmm 'be torpid, keep silent': cf. Leslau 129).

b) in the non-initial intervocalic position

3.10. Alt. *-da/-dä, Locative-Ablative marker (Mong. -da/-dä, Locative, OTurk. -δa/-δä, Ablative-Locative, Chuvash –ra, Locative; see Ramstedt Vv. 2, 42-43) ~ Ural. *-δa/-δä Ablative marker (Finn. -ta/-tä, Mansi -l; see Collinder CG 287) ~ Drav. *ṯṯ(ʌ), Locative marker (Tuluva -ṭa, Brahui -aṭī; cf. Bloch 17) ~ Kartv. *-d(a), Locative-Essive marker (Georg. -d, -ad, -da, Svan -d, -ad; see Klimov 43, 48) ~ HS *-d, Locative and Essive particle (Beja -d, -t, Bilin -d, Saho -d, -de; cf. Reinisch SAW 128, 7, 75)[26].

[25] Cf. Dolg. 13-14.

[26] Cf. Collinder UAJb 24, 10 (Alt. ~ Ural.); Trombetti El. 146 (Ural. ~ Drav.).

3.11. Alt. *odʌ- 'move' (Mong. odu- 'depart') ~ Drav. *āṭṭ-/āṭʌ- 'move (vi, vt)' (Tamil āṭṭu 'move, rock'/āṭu 'move, dance, play', Telegu āḍu id.; see DED 26) ~ Kartv. *qad-/qed- 'move (vi, vt)' (OGeorg. qad-/qed- 'go; take out', Svan qad-/qd-/qed-/qid- id.; see Klimov 263) ~ HS *ḫd- 'move' (Ar. ḫdw, wḫd 'go fast', OEgypt. ḫdj 'go down by the river', Somali ād- 'go'; see Cohen 107).

3.12. Ural. *peδe- 'pierce' (Lapp bæđđâ-, Xanty pel-; see Coll. 74) ~ Drav. *peṭṭ- 'insert' (Kannada heṭṭu, Telegu peṭṭu; see DED 290) ~ IE *bhedh- 'drive into, pierce, stick, drive into' (Lat. fodiō 'I dig', Lith. bedù 'I run (smth) into'; see Pok. 113-114) ~ HS *bd- 'pierce, split' (Ar. bdd 'divide', Afar bod 'split, open', Chad.: Margi bda 'sting', Musgoi fada 'kill'; cf. Reinisch SAW 113, 825).

3.13. Alt. *üdʌ- 'tie, bind' (Mong. üdü-) ~ IE *Heudh-/*Hu̯edh- 'bind, plait together' (Arm. z-audem 'I bind', Lith. áudžiu 'I weave'/OInd. vadhrá-, m.n. 'belt, girdle', OHGerm. wetan 'bind, harness'; cf. Pok. 75-76, 1116-1117).

3.14. Ural. *ńowδa- 'pursue, chase' (Mansi ńowl-, Nenets ńōda-; cf. Coll. 41) ~ IE *i̯eudh- 'fight, move fast' (OInd. yúdhtati 'fights', Lith. judéti 'move, quarrel'; see Pok. 511-512) ~ HS *nwd 'move to and fro' (Ar. nwd, Hebr. nwd; see Ges. 419).

3.15. Drav. *kaṭṭ- 'tie, fix, build' (Tamil kaṭṭu, Parji kaṭṭ-; see DED 83) ~ Kartv. *ḳed- 'build' (OGeorg. ḳed-, Chan ḳid-; see Klimov 107) ~ HS *ḳd- 'build, shape pottery' (Ar. qadd 'form', Akkad. qadū- 'pot', OEgypt. ḳd 'build, form'; see Cohen 124).

3.16. Alt. *küdägü 'son-in-law, bridegroom' (Middle Oghuz, Ibn Muxanna, güjägü, Turkmen gijev, Tuva küdā) ~ Ural. küδü 'spouse's relative' (Finn. kyty 'brother-in-law', Mansi kil 'in-law (for husband)'; see SKES 257).

3.17. Alt. *sidä- 'baste' (Mong. side-, Kor. si̯tčh-; see Räs 10) ~ Ural. *śyδʌ- 'tether' (Finn. sito- 'tether', Xanty sălə 'harness belt'; cf. Setälä FUF 12 Anzeiger, 38; Coll. 59-60)[27].

3.18. Alt. *udʌ- 'sleep' (OTurk. uδy-, Turkish uyu-) ~ Ural. *oδa- 'sleep' (Lapp oađđe-, Mordvin udo-; see Coll. 72)[28].

3.19. Alt. *ǯada- 'prostrate, stretch, spread' (Mong. ǯadagai 'prostrate', OTurk. jaδ- 'spread'; see Ram. 64) ~ Drav. *caṭṭ- 'flat' (Kannada caṭṭu 'flat surface', Tuluva caṭṭè 'flat, smooth'; see DED 151).

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[27] Cf. Räs. 10.

[28] Cf. Trombetti El. 398; Németh NyK 47, 72; Räs. 42; Coll. 147.

3.20. Alt. *k'udu 'tail' (Nanai xujgu < *xü/d/rgü 'tail', Mong. qudurga 'tail strap', Turkmen qujruk 'tail'; cf. KW 195; Benzing 990) ~ Kartv. *ḳud- 'tail' (Georg. ḳud-, Chan ḳudel-, Svan haḳwäd-; see Klimov 117)[29].

3.21. Ural. *lewδä- 'find' (Finn. löytä-, Hung. lel-; see Coll. 95) ~ Drav. *nēṭʌ- 'look for, obtain' (Tamil nēṭu 'look for, obtain', Kogadu në·d- 'earn'; see DED 254).

3.22. Ural. *ńyδa- 'tether' (Lapp njâđđe- 'tether', Hung. nyaláb 'bunch'; see Paasonen FUF 7, 23) ~ IE *nedh- 'tether' (OInd. naddhás 'tethered', Lat. nōdus 'knot'; see Ernout-Meillet 772-773)[30].

3.23. Drav. *veṭṭ- 'chop, pierce, thrust forcefully' (Tamil veṭṭu 'cut with sword, axe', Kannada beṭṭu 'pierce forcefully, press in'; see DED 378) ~ IE *u̯edh- 'beat, pierce, destroy' (OInd. vadhati 'beats, pricks, exterminates', Homer. Grk. εθον 'piercing, tearing'; see Pok. 1115).

3.24. Kartv. *šwd- 'choke, strangle, drown (vi, vt)' (OGeorg. šišudil- 'strangulation', Chan škwid- 'choke, strangle, drown', Svan šgwd-, šgud- id.; see Klimov 215) ~ HS *š(w)d 'use violence' (Geez sdd 'expel', Hebr. šdd, šwd 'use violence, devastate'; see Ges. 808).

Velars. Three different sets of phonetic correspondences allow us to reconstruct three phonemes opposed by the plosure type, namely, *ḳ, *k, *g. In the three western proto-languages (Indo-European, Kartvelian, and Hamito-Semitic), the respective reflexes differ depending on the following vowel: before the originally rounded vowels, which were eventually lost by these proto-languages, labiovelar consonants are observed (in Kartvelian, these can be interpreted as the combination "velar + -w-" see above), while before non-rounded vowels velars proper occur. In addition to that, Indo-European has another set of reflexes: the velars followed by the originally non-rounded front vowels are represented by the palatals[31].

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[29] Cf. Dolg. 17.

[30] Cf. Paasonen FUF 7, 23; Sköld FUF 18, 223.

[31] In the three western languages, the labiovelars are represented as in 4.2, 5.12, 6.4 (where the labiovelar is partially delabialized under the influence of the velar *ɬ), 6.15 (also cf. 5.17, 6.18; in 4.6, 4.9, 6.6, 6.7, and probably, in 6.12, where the original vocalic *u is retained as the sonorant *w, no labialization can be found). The IE palatals are shown in 4.3, 5.1, 5.4, 6.5, 6.10 (also cf. 4.14, 6.16), while the IE velars are presented in 4.4, 5.10, 5.11, 6.2, cf. 4.7, 4.8, 4.15 (these IE series are corresponded by the velars proper in Kartvelian and Hamito-Semitic). Judging by example 10 in Note 36 below (HS *kr 'cover' ~ Alt. *k'apa; the original *ḳ or *q̇), Hamito-Semitic could have developed *ḳ in the same environment as *ṭ > *t, namely, in the roots having HS *p. For the

*ḳ[32]

a) in the initial position

4.1. Alt. *kʿala 'stay, wait' (Nanai xalače- 'wait', Turkmen gāl- 'stay'; cf. Vasil. 23; Этимология 1964) ~ Ural. *kaδʹa- 'leave, stay' (Lapp guođđe- 'leave', Mari koδ- 'stay', Hung. hagy- 'leave'; see Coll. 22-23) ~ Drav. *kaṭʌ- 'pass by, through; leave' (Toda kaḍ- 'leave, abandon, pass by', Telegu kaḍacu 'pass through, pass, be over'; see DED 79-80) ~ Kartv. *ḳel- 'stay, abandon' (Mingrel gī-ḳal-ip-u 'get, return empty-handed', Chan go-n-ḳal-u 'leave, go away'; see Čik. 288) ~ HS *ḳlʿ 'throw, leave' (Ar. qlʿ 'throw stones', South Ar.: Dofat qalaʿa 'abandon'; see Leslau 323)[33].

4.2. Alt. *kʿolʹ- 'spin, fidget, move' (Evenki Sym olonmu- 'dance in a ring', Mong. qoldiga- 'fidget, be restless', Turkish koş- 'run, race') ~ Ural. *kolʹʌ- 'circle, encircle' (Selkup kolʹa 'circle', kolʹäpty 'encircle, go round') ~ IE *kᵘel- 'whirl (vi, vt), be moving' (Grk. πέλομαι 'I move', Alb. sjel- 'I spin', OPruss. kelan 'wheel'; see Pok. 639-640) ~ Kartv. *ḳwer- 'round' (Georg. ḳwer- 'round bread', Mingrel ḳwarḳwalia 'round'; see Klimov 110) ~ HS *kᵘl- 'turn, whirl' (Ar. qlb 'turn over', Geez ḳᵘal-ḳᵘala 'circle, go round', Beja kᵘalel 'roll', Hausa kʼwalā-kʼwalā 'big and round'; see Leslau 374).

4.3. Alt. *kʿärʌ- or *kʿerʌ- 'tether, wind around' (Nanai xärkä 'wind around', Mong. kere- 'tether'; cf. KW 227) ~ Ural. *kärʌ- 'tie, bind' (Mordvin Moksa kärmä 'bunch, harness', Mansi Tavda ker- 'plait into', Xanty Vax kerə 'bunch, binding'; cf. Paasonen OW 72) ~ IE *ḱer- 'tie' (Arm. sarikʿ, Pl. 'ropes', Grk. χαιρόω 'I tie'; cf. Pok. 577) ~ Kartv. *ḳar-/ḳr- 'tie' (Georg. ḳar-/ḳr-, Chan ḳir-; see Klimov 106)[34].

4.4. Alt. *kʿar(b)yn 'belly' (Mong. qarbin 'pot-belly', Turkmen qaryn 'belly', Tuva xyryn id.) ~ Drav. *karʌ 'womb, foetus' (Tamil karu 'foetus, embryon', karuppai 'womb', Telegu karuvu 'foetus'; see DED 90) ~ IE *kerṷ- 'belly' (OPruss. kērmens

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respective IE reflexes see V. M. Illič-Svityč, Генезис индоевропейских рядов гуттуральных в свете данных внешнего сравнения, in Проблемы сравнительной грамматики индоевропейских языков, Moscow, 1964, 22-26.

[32] Since Karvelian is the only language to differentiate between the reflexes of *ḳ and the postvelar *q̇, below only the correspondences including the Kartvelian data are given.

[33] Cf. Coll. 144 (Alt. ~ Ural.).

[34] Cf. Dolg. 17 (IE ~ Kartv.).

'belly', OSlav. črěvo; see Vas. 3, 319) ~ HS *ḳrb 'belly, entrails' (Hebr. ḳęręb 'belly, entrails', OEgypt. ḳ3b 'entrails'; see Cohen 126)[35].

4.5. Drav. *kaṭṭ- 'tie, fix, build' ~ IE *ket- 'primitive building, closet' (Avest. kata-, m., Goth. hēþjō; cp. Pok. 586-587) ~ Kartv. *ḳed- 'build' ~ HS *ḳd- 'build, shape pottery'; see 3.15.

4.6. Drav. *kuṭ(ṭ)ʌ 'small, short' ~ Kartv. *ḳuṭʌ 'small' ~ HS *ḳ(w)ṭ- 'small'; see 1.39.

4.7. IE *ker- 'heat, oven' (OIceland. hyrr 'fire', Latv. cęri 'fireplace stones', Polish trzon 'oven'; see Pok. 571-572) ~ HS *ḳrr 'burn, glaze' (Akkad. qarāru 'burn, dry out', OEgypt. ḳrr 'burn pottery'; see Cohen 127)[36].[3+]

4.8. IE *kel- 'raise, ascend, high' (OLat. columen 'top (of hill)', Lith. kélti 'raise'; see Pok. 544) ~ Kartv. *ḳlatx- 'high' (Svan. ḳəltxi 'high', naḳlatxi 'height') ~ HS *ḳl- 'raise, rise, high' (Ar. qll 'raise, rise, be high', OEgypt. ḳ3j 'be tall, high', Berber Sus gli 'raise'; see Calice 82).

4.9. Alt. *k'udu 'tail' ~ Kartv. *ḳud- 'tail'; see 3.20.

4.10. Ural. *kelke- 'be lacking, be necessary' (Lapp gâl'gâ- 'must', Hung. kělle- 'be necessary', Selkup kelemnak 'I lack'; see Coll. 87) ~ Kartv. *ḳal-/ḳel- 'lack, be missing' (Georg. ḳel-/ḳl-, dial. ḳal- 'lack', Chan ḳor- 'need, want'; see Klimov 106).

4.11. Ural. *kajćʌ 'bridegroom, young man' (Mari: Eastern käcə, Western kaćə 'bridegroom, lad', Hung. hős, dial. hés 'bridegroom, boy-friend'; see Coll. 15) ~ Kartv. *ḳac$_1$ 'man, person' (Georg. kac-, Chan ḳoč-; see Klimov 106).

4.12. Ural. *kala 'fish' (Finn. kala, Hung. hal; see Coll. 21) ~ Kartv. ḳalmax- 'fish' (Svan ḳalmax, Pl. ḳalmaxär).

4.13. Drav. *kuṭṭ- 'secret (adj)' (Tamil kuṭṭu 'secret (adj)', Telegu guṭṭu 'secret (n)'; see DED 116) ~ Kartv. *ḳwel- 'hide, conceal' (Mingrel ḳwal-).

4.14. IE *ĸerd- 'heart' (Lat. cor, Gen. cordis, Lith. širdìs; see Pok. 580) ~ Kartv. *mḳerd- 'chest' (Georg. mkerd-, Mingrel ḳədər-, Svan məčwed; see Klimov 135-136).

4.15. IE *kep- 'chop, dig' (Grk. χόπτω 'I cut, chop', OSlav. kopati 'dig'; see Pok. 931-932) ~ Kartv. *ḳap-/ḳp- 'cut, chop' (Georg. ḳap-, Svan kpən-).

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[35] Cf. Trombetti El. 112 (Alt. ~ IE). The Kartvelian *karb- 'belly' (Mingrel kora, Chan korba; see Cik. 68), which possibly lost glottalization, indicates the original velar *ḳ, rather than a postvelar stop.

[36] Cf. Dolg. 17.

4.16. Alt. *k'/e/sʌ 'cut' (Mong. keseg 'piece', Turkmen kes- 'cut, chop'; see Ram. 144) ~ Ural. *kećʌ 'knife' (Mari kəzə-, Xanty Vax köčəh; see Coll. 88) ~ IE *ǩes- 'cut' (OInd. śā́sti, Tohar. B käs; see Pok. 586) ~ Kartv. *ḳc$_1$- 'cut off' (Svan. ḳč-).

4.17. Kartv. *ḳb-in- 'bite', *ḳb-il- 'tooth' (Georg. ḳbin-, ḳbil-, Chan ḳibin-, Mingrel ḳibir-, see Klimov 106-107) ~ HS *ḳb- 'bite' (Ar. ḳb', ḳ'b 'consume food', Berber Sus gbi 'bite').

b) in the non-initial intervocalic position[37]

4.18. Alt. *-ka/-kä, Lative-Dative marker (OTurk. -ka/-kä; cf. Ramstedt Vv. 2. 39) ~ Ural. *-kk(ʌ), Lative marker (Finn. -k, Mari -kə; cf. Collinder CG 296) ~ Drav. *-kk(ʌ), Dative marker (Tamil -kku, Kannada -ke, Telegu -ku(n); cf. Bloch 17) ~ Kartv. *-ḳen 'towards' (postposition) (Georg. -ḳen).

4.19. Alt. *lokʌ or *lukʌ 'lynx, polar fox, dog' (Evenki Nepa luku 'blue fox', Oroč loke 'lynx', Manchu luka 'young lynx', Mong. noqai 'dog'; cf. Sanžeev IAN 1930, 698) ~ Drav. *nakk- 'jackal, fox' (Kannada nakke 'jackal', Kolami nakka 'fox'; cf. DED 239) ~ IE *luǩ- 'lynx' (Arm. lusanunk', Pl., OHGerm luhs; cf. Pok. 690) ~ Kartv. *leḳ(w)- 'puppy, dog' (Georg. leḳw- 'puppy', Chan laḳ- 'dog', laḳoṭ- 'puppy'; see Klimov 120).

*k

a) in the initial position

5.1. Alt. *käli 'husband's sister, daughter-in-law; sister's husband' (Evenki käli 'brother-in-law', Azerb. gälin 'daughter-in-law'; cf. Räs. 9) ~ Ural. *kälü 'husband's

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[37] In the following examples, where no Karvelian data are available, either *ḳ or the postvelar *q̇ (which has the adequate plosure) can be reconstructed: 1. Alt. *näkä- 'pursue' (Mong. neke-) ~ IE *neǩ- 'kill, perish' (see Pok. 762) ~ HS *nḳ- 'avenge, kill' (cf. Leslau 274); 2. Alt. *āk(ʌ)- 'flow' (Turkmen āq-) ~ IE *ak^{u}ā 'water, river' (see Pok. 23) ~ HS *'ḳ^{u}- 'water, pour' (cf. Cohen 129-130; Cerulli 2, 223); 3. Alt. *čok 'much, many' (see Ramstedt JSFOu 57^{3}, 7) ~ Ural. *čokkʌ 'thick, much, many' (see Coll. 114); 4. Alt. *poka 'bubble' (Nanai poka) ~ Drav. *pokk- 'bubble' (see DED 295); 5. Alt. *oky 'blade' (see Poppe 98) ~ IE *Heǩ- 'sharp, blade' (see Pok. 18-22); 6. Alt. *päkü 'hot' (see Vasil. 505) ~ IE *pek^{u}- 'fry, boil' (see Pok. 798); 7. Alt. *baka- 'look, find' (Turkmen baq-, Evenki baka-) ~ HS *bḳ- 'see' (cf. Cerulli 4, 413); 8. Ural. *ɬükkʌ- 'thrust, push' (see Coll. 96) ~ Drav. *tukk- id. (see DED 214); 9. Ural. *rakkʌ- 'build, construct' (see Coll. 110) ~ IE *rek- 'construct, decide, speak' (see Pok. 863).
Cf. the respective stop in the initial position: 10 Alt. *k'apa- 'close' (see Ram. 89-90) ~ Drav. *kapp- 'cover' (see DED 86-87) ~ HS *kpr 'cover, wrap' (see Calice 84) and many others.

sister; sister's husband' (Finn. käly 'sister-in-law, wife or spouse's brother', Nenets sēl 'husband's or wife's sister'; see Coll. 23) ~ Drav. *kal- 'uncle's wife, maternal aunt' (Kurukh k̲hallī 'youngest uncle's wife', Malto qali 'maternal aunt'; see DED 94) ~ IE *ĝ$_e$l(ō)u̯ 'husband's sister' (Att. Grk. γάλως 'sister-in-law (husband's sister)' ChSlav. zъlъva id.; see Pok. 367-368) ~ Kartv. *kal- 'woman' (Georg. kal-) ~ HS *kll 'daughter-in-law, bride' (Hebr. kallā, South Ar.: Sokotri kelán, Akk. kallat f.; see Leslau 219).

5.2. Ural. *koja 'fat' (Mordvin kuja, Mari koja; cf. Coll. 93) ~ IE *g$^{u̯}$eiH- 'life, subsistence' (Avest. ǰīǰišənti 'they feed', Homer. Grk. βέομαι 'I'll live', Serbo-Cr. gôj 'fatness'; cf. Pok. 467-468).

5.3. Ural. *kiwe 'stone' (Finn. kivi, Mordvin Erzja kev; see Coll. 89) ~ Kartv. *kwa 'stone' (Georg. kwa, Chan kua; see Klimov 197) ~ HS *kw 'stone' (Buduma kau̯, Jen kwą̄M Wandala nə́kwą; see Gaudefroy Actes 14^2, 271; Mouchet ECam. 3, 18)[38].

5.4. Alt. *käbʌ- or *kebʌ- 'chew' (Evenki käwä 'jaw', Mong. kebi- 'chew up', Turkmen gāviš- 'chew cud'; cf. Poppe JSFOu 63, 18) ~ IE *ĝeu̯(H)- 'chew' (OEng. cēowan 'chew', Lith. žiáunos, Pl. 'jaws'; cf. Pok. 400)[39].

5.5. Alt. *kolu- 'bark (a tree), flay, skin' (Evenki kolū 'peel, take off cap', Mong. qoludasun 'stripped bark'; cf. KW 182) ~ Ural. *kolʌ- 'bark (a tree)' (Finn. kolo; see SKES 212)[40].

5.6. Alt. *küdägü 'son-in-law, bridegroom, ~ Ural. *küδü 'in-law (spouse's relative)'; see 3.16.

5.7. Alt. *kīwä 'birch-bark, birch-tree' (Evenki Barguzin kīwä 'birch-bark, birch-tree', Even kīwä 'birch-bark') ~ *Ural. kojwu 'birch-tree' (Finn. kojvu, Kamas kojü; see Coll. 25)[41].

5.8. Alt. *käl(ʌ)- 'come' (Turkish gel-, Azerb. gäl-, Turkmen gel- Tuva kel-; see Biišev 40) ~ Ural. *kälä- 'wade, go' (Mordvin Moksa kälə- 'wade, ford', Hung. kel- 'start travelling'; see Coll. 20) ~ Kartv. *kl- 'wander' (Mingrel kil-, nkil-)[42].

5.9. Alt. *kuly- 'worm, snake' (Evenki kulikān 'worm', kulin 'snake', Nanai kolan 'worm', Kor. kure̯ŋi 'snake (species)'; see SKE 132; Benzing 28) ~ Ural. *kołʌ

[38] Cf. Dolg. 16 (Ural. ~ Kartv.).
[39] Cf. Menges StOFe 28^8, 27-28.
[40] Cf. Räs. 50.
[41] Cf. Räs. 27; Coll. 145.
[42] Cf. Räs. 43; Coll. 144 (Alt. ~ Ural.).

'intestinal worm' (Udmurt kęl 'tapeworm, intestinal worm', Xanty kuł 'intestinal worm'; cf. Coll. 25) ~ HS *k^{u}l 'snake' (Chad.: Bolewa kuredi, Angas kwol, Somrai kula).

5.10. Alt. *kamʌ- 'seize, squeeze' (Nanai kamale- 'press', Mong. qamu- 'pick up, grasp'; cf. KW 164) ~ IE *gem- 'seize, squeeze' (Grk. γέντο 'seized (aor.)', OSlav. žьmǫ 'I squeeze'; see Pok. 368-369) ~ HS *km- 'seize' (Akkad. kamū, Chad.: Hausa kāma, Masa čum; see Greenburg 61).

5.11. Alt. *kal'- 'bald, bare' (Manchu kalǯa 'bald spots, bald head', Mong. qaltar 'bald, bare', OTurk. qašqa 'bald'; cf. KW 163) ~ IE *gol- 'bald, bare' (OHGerm. kalo 'bald', OSlav. golъ 'bald'; cf. Pok. 349).

5.12. Ural. *kupsa- 'die out, extinguish' (Est. kustu-, Kola Lapp gop'se; see Coll. 29) ~ IE *g^{u}es- 'die out, extinguish' (Grk. σβέννυμι 'I put out (fire)', Lith. gèsti 'die out'; see Pok. 479-480).

5.13. Drav. *kuṟ- or *koṟ- 'sheep' (Tamil koṟi, Toda kury, Kannada kuṟi, koṟi; see DED 145) ~ HS *krr or *k^{u}rr 'lamb, ram' (Akkad. kirru 'lamb', Berber Kabyle ikərri 'ram', Chad.: Angas kīr 'fattened ram'; see Cohen 114).

5.14. Alt. *köl'- 'cold' (Mong. kölde- 'get cold, freeze'; see Räs. 37) ~ Ural. *külmä 'cold, freeze' (Finn. kylmä 'cold', Lapp gâl'bme- 'freeze'; see SKES 254) ~ Drav. *kuḷʌ 'cool, cold' (Tamil kuḷir 'feel coldness', Kannada kuḷir 'be cold, cool'; see DED 124) ~ Kartv. *kwal-/kwel- 'cold' (Svan kwäl- 'shiver', kwēl- 'cool down').

5.15. Alt. *kanta- 'reach by hand' (Olča kanta-, Nanai kāntači-) ~ Ural. *kanta- 'carry, bear, bring' (Finn. kanta-, Mari kandə-, Selkup kuenda-; see Coll. 22).

5.16. IE *ĝenH- 'know' (OInd. jānā́mi, Grk. γιγνώσχω; see Pok. 376-378) ~ HS *k(j)n 'know' (Beja kan 'know', Agau Bilin kin 'know'; see Reinisch SAW 128[7], 20).

5.17. IE *g^{u}enā 'woman, wife' (Arm. kin, OIrish ben; see Pok. 473-474) ~ HS k^{u}n 'woman, wife' (Akkad. kinītu, f. 'girl-friend', Berber Kabyle ta-kena 'one of the wives', Agau Dembja kŭn̄a, Agau Meder xŭnā 'woman'; cf. Rossler ZAss 50, 133; Reinisch SAW 106, 349).

b) in the non-initial intervocalic position

5.18. Alt. *toga or *tuga 'number' (Mong. toga, Mogal toa; see Poppe Mong. 104) ~ Ural. *łuke- or *luke- 'count, speak' (Finn. luke- 'count', Mordvin lovo- id., Nenets lohana 'speak'; see Coll. 131) ~ Drav. *tokk-/tokʌ- 'collect, count' (Tamil toku-

'gather, count', Telegu tokkulāḍu 'crowd, cluster'; see DED 228-229) ~ IE *leĝ- 'collect, count, speak' (Grk. λέγω 'I collect, count, say', Alb. mb-leth 'I collect'; see Pok. 658)[43].

5.19. Alt. *täg(ʌ)- 'touch' (Azerb. däj-, Turkmen deg-, Tuva deg-) ~ Drav. *takʌ 'touch' (Kannada tagalu, Malto take; see DED 192) ~ IE *deg- 'touch' (Goth. tēkan, Toh. B tek-; cf. Pok. 183).

5.20. Ural. *ńüki- 'jerk, tug, twitch' (Finn. nyki-, Hung. nyüv-; see Coll. 103) ~ Drav. *nukʌ- 'shake, swing, rock' (Kurukh nuk-, Malto nuke; see DED 248) ~ IE *i̯euĝ- 'move' (Avest. yaozaiti 'is rough (of water)', Goth. jiukan 'fight'; see Pok. 512).

5.21. Alt. *daga- 'follow smb, adhere' (Mong. daga-, OTurk. jaγ- 'stick, cling, adhere'; cf. KW 72) ~ Ural. *taka 'rear, hinter-' (Finn. taka- 'rear', Nganasan takanu 'behind'; see Coll. 61)[44].

5.22. Ural. *wäke 'power, big' (Finn. väkevä 'strong', Lapp viekkâ 'rather, rather large', Xanty wöγ 'power'; see Coll. 123-124) ~ IE *u̯eĝ- 'strong, brisk' (OInd. vājas, m. 'force', Lat. vegeō 'I am cheerful'; see Pok. 1117-1118).

5.23. Ural. *pakʌ- 'run away' (Finn. pakene- 'run away', pako 'escape', Est. pagu id.; see SKES 470) ~ IE *bheg̑u̯- 'run away' (Grk. φέβομαι, Lith. bė̃gti; see Pok. 116)[45].

5.24. IE *leuĝ- 'break' (OEng. to-lūcan 'destroy', Lith. láužti 'break'; cf. Pok. 686) ~ HS *lwk 'gnaw, tooth' (Ar. lwk 'gnaw', Galla ilka 'tooth'; see Cohen 183).

*g

a) in the initial position

6.1. Alt. *görʌ 'wild (steppe) animal' (Manchu gurgu 'beast', Middle Mong. göre'esün 'wild animal, antelope', Mogol Zirni görasùn 'wild donkey', Turkish gürä 'wild'; cf. Poppe 25) ~ Drav. *kŭr- or *kor- 'deer, antelope' (Malayalam kūran 'one year old reindeer', Kolami goria 'deer, antelope', Gadba kuruy 'deer'; cf. DED 130, 121) ~ IE *ĝhu̯ēr- 'wild animal' (Grk. θήρ, Lith. žvėrìs; see Pok. 493) ~ HS *g$^{u}_{}$r- 'antelope' (Beja garuwa, Irakw gwaräḥi, Logone garia; see Greenberg 51).

[43] Cf. Schrader ZII 3, 108 (Ural. ~ Drav.); Collinder IUS 12 (Ural ~ IE).
[44] Cf. Räs. 52; Coll. 146.
[45] Cf. Кеппен 47.

6.2. Alt. *gara 'dry branch, bough' (Evenki gara, Nanai gara; see Vasil. 82) ~ Ural. *kara 'dry branch, sharp' (Finn. kara 'thorn, dry bough', Nganasan karu 'dry larch'; cf. SKES 160) ~ Drav. *kar- 'rough, rugged, sharp' (Tamil karaṭu 'roughness', Telegu kara 'sharp', karasu 'rough'; see DED 89) ~ IE *gher(H)- 'protrude, branch' (Grk. χοιράς 'protruding', Serbo-Cr. grána 'branch'; see Pok. 440)[46].

6.3. Alt. *gürä- 'neck' (Kalm. gürē 'neck', Kirghiz kürö tamyr 'neck vein'; cf. KW 139) ~ Ural. *k(ü)rkʌ 'neck', 'the interior, cavity' (Mordvin Mokša kərga 'neck', Mari körgö 'the interior, cavity (in a tree)'; see Coll. 89) ~ Drav. *kur- 'gullet, throat, neck' (Tamil kural 'gullet, windpipe', Kodagu kora 'gullet, windpipe', Tuluva kurelụ 'back of the side of the neck'; see DED 121) ~ HS *g^{u}r^{ʕ} 'throat, swallow' (Ar. gr^{ʕ} 'swallow', Geez g^{u}ərʿē 'throat', Somali gawra^{ʕ} 'throat'; cf. Cohen 120)[47].

6.4. Ural. *kułʌ 'smooth, slippery' (Komi gylyd, Xanty kŏłi; see Coll. 80) ~ IE *ghloHdh- 'smooth, bald' (Lat. glaber 'bald, smooth', OFrys. gled 'smooth', OLith. gluodas 'smooth'; cf. Pok. 431-432) ~ HS *g^{u}l- 'smooth, bald' (Ar. ğlḥ 'be bald', ğlj 'polish, grind', Beja g^{u}ol'a 'bald spot'; cf. Ges. 141).

6.5. Alt. *gilʌ 'shine, sparkle' (Evenki gilbä-, gildi-, Mong. gileji-; see KW 136) ~ Ural. *kīlʌ- 'shine, glitter' (Finn. kiiltä-, kiilu-) ~ IE *ĝhel(H)- 'shine, light (of colour)' (OInd. hári- 'light, yellow', OIrish gel 'shiny, white'; see Pok. 429-430) ~ HS *gḥl or *gḫl 'blaze, sparkle' (Hebr. gaḥḥalt 'burning coals, lightning', Logone gəlé 'blaze')[48].

6.6. Alt. *gübä- 'convex, curved, crooked' (Evenki giwältä 'in different directions', Mong. gübege 'hillock', gübeji- 'be hilly, curved') ~ IE *gheub- 'bend, crooked' (OEng. géap 'crooked', Latv. gubt 'stoop'; see Pok. 450) ~ HS *gwb 'bend down' (Hebr. gbb 'be bent (down)', gab 'back', Afar gūb 'bend down'; cf. Cohen 119).

6.7. Alt. *gōl(ʌ) 'middle, river valley' (Manchu golo, Mong. gool; see KW 149-150) ~ Kartv. *gul- 'heart' (Georg. gul-, Chan gur-, Svan gwi-; see Klimov 66) ~ HS *g(w)l 'heart' (Chad.: Musuk agul, Gudu guraksə)[49].

6.8. Alt. *güjʌ '(clothes) moth' (Mong. güür, Turkmen küja; cf. KW 140) ~ Ural. *kojʌ 'moth' (Finn. koi, koja, Mordvin ki; cf. Coll. 90)[50].

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[46] Cf. Räs. 26 (Alt. ~ Ural.).

[47] Cf. Caldwell 616; Schrader BSOS 8, 757; Burrow BSOS 11, 340 (Ural. ~ Drav.); Dolg. 19 (Ural. ~ HS).

[48] Cf. Räs. 48, Dolg. 18 (Alt. ~ Ural.).

[49] Cf. Dolgopolsky's paper in "Вопросы языкознания" 2 (1960): 60 (Kartv. ~ HS).

[50] See Räsänen Mat. 134; Coll. 148.

6.9. Alt. *gändü 'male' (Mong. gendü 'male', Turkish kendi 'self'; see KW 133) ~ Drav. *kaṇṭ- 'male, man' (Malayalam kaṇṭan 'male, tom-cat', Kodagu kaṇḍë 'wild animal male, male dog', Telegu gaṇḍu 'bravery, virility'; see DED 85).

6.10. Alt. *gärä or *gerä 'light' (Manchu gere- 'to dawn', Middle Mong. gere 'light'; see KW 134) ~ IE *ĝher(H)- 'shine, beam, be radiant' (OIrish grían f. 'sun', OScand. grár 'grey', Lith. žerėte 'shine'; see Pok. 441-442) ~ HS *ghr 'shiny day' (Ar. ğhr 'to dawn', Hamir girkā 'day', Chad.: Hausa garī 'sky', Musgoli gir 'day'; cf. Leslau 104).

6.11. Alt. *gedä 'back side, back of the head' ~ IE *ĝhed- 'back side, caccare'; see 2.21.

6.12. Alt. *guny- 'think, be sad' (Even gūn- 'think', Mong. guni- 'be sad'; see KW 155) ~ Kartv. *gon- 'think, recall' (Georg. gon-, Mingrel gon-; see Klimov 63).

6.13. Alt. *ga- 'take, get' (Evenki ga-, Nanai ga-; see Vasil. 80) ~ Kartv. *g- 'acquire, win' (Georg. g(w)-, Chan. g-; see Klimov 57).

6.14. Alt. *goby 'desert, steppe' (Mong. gobi; see Poppe Mong. 29) ~ HS *gbb 'plain, field, desert' (Ar. ğabābat 'plain, desert', Sidamo goba 'field'; see Cohen 119).

6.15. Ural. *kuje 'morning redness in the sky' (Finn. koi, Komi kya; cf. Coll. 90) ~ IE *g^{u}haḭ- 'shine, twinkle' (Grk. φαιός 'twinkling', Lith. giẽdras 'clear, light'; see Pok. 488-489).

6.16. IE *ĝhal- 'disease, harm, damage' (OIrish galar, n. 'disease, concern', OScand. galli, m. 'spot, loss', Lith. žalà 'harm'; see Pok. 411) ~ HS gl- 'disease' (South Ar.: Sokotri g(y)ole, Shahari géle; see Leslau 109).

6.17. IE *gholH- or *g^{u}holH- 'head' (Arm. glux, Lith. galvà, Serbo-Cr. gláva; see Vas. 1, 286; Fraenkel 132) ~ HS *glgl (reduplication) 'head' (Hebr. gulgolęt, OEgypt. ḏ3ḏ3; see Cohen 121).

6.18. Kartv. *gwr 'roll' (Georg. gor-, Svan gur-, gwr-; cf. Klimov 64) ~ HS *g^{u}l- 'roll, round' (Amhar. g^{u}älälä 'roll', Hebr. gilgal 'circle, round', Logone ŋgolő 'round'; cf. Cohen 121).

b) in the non-initial intervocalic position

6.19. Alt. *saga- 'derive, milk' (Mong. saga 'milk', Kalm. sā- 'milk, pull towards oneself', Turkish sağ- 'milk, take honey from combs'; see KW 317) ~ Ural. *sāγe- 'get, achieve' (Finn. saa- 'get, attain', Kola Lapp sakky- 'get', Mari šo- 'get, arrive'; see Coll. 54) ~ IE *seĝh- 'procure, overcome, hold' (OInd. sáhatē 'overcomes, endures', Avest. haz- 'take possession (of), get', Grk. εχω 'I hold, possess'; see Pok. 888-889)[51].

6.20. Ural. *wēγe- or *wīγe- 'take (away), carry' (Finn. vie-, Kola Lapp vykka-, Mordvin vije-; cf. Col. 140) ~ IE *u̯eĝh- 'lead, carry, convey' (OInd. váhati 'leads, carries', Lat. vehō 'I lead, carry', OSlav. vezǫ 'I carry'; see Pok. 1118-1120)[52].

6.21. Alt. *t'ago or t'oga 'fire' (Evenki togo, Nanai tawa, Manchu tuwa; see Cincius 323) ~ IE *dheg^{u}h- 'burn' (OInd. dáhati 'it burns', Lat. foveō 'I warm'; see Pok. 240-241)[53].

6.22. Alt. *dyga- or *tyga- 'fish' (Mong. ǯigasum, Mongor ǯiägasę; see Poppe Mong. 34) ~ IE *ĝhdhū (metathesis) 'fish' (Grk. ιχθῦς, Lith. žuvìs; cf. Pok. 416-417) ~ HS *dg 'fish' (Hebr. dāγ, Ugarit. dg, Bilin segā).

6.23. Alt. *magu 'bad' (Mong. magu, Kalm. mū) ~ HS *mg^{u}- 'bad' (Beja māg, Galla magŭ, Hausa mūgu; see Trombetti Less. 422)[54].

6.24. Drav. *mā 'large' (Tamil mā, Malayalam mā; see DED 319) ~ Kartv. *mag- 'strong, large' (Georg. magar- 'powerful, strong').

6.25. Ural. *māγʌ 'earth, land' (Finn. maa, Mansi Sr. Konda mę̄, Nganasan mou; see Coll. 33) ~ IE *meĝh- 'land' (OInd. mahī́, f. 'land', OIrish mag, n. 'plain, lowland, open space'; cf. Pok. 709).

6.26. IE *legh- 'lay, lie down' (OHG. ligen 'lie', Goth. lagjan 'lay, put down', OSlav. ležati 'lie'; see Pok. 658-659) ~ Kartv. *lag- 'put down, plant' (Georg. lag- 'put, remove', Svan laǯ-, lž- 'plant'; cf. Klimov 118-119).

Postvelars. Three different sets of correspondences point to three proto-phonemes with a more back articulation than that of velars proper. This type of articulation can be assumed on the basis of the reflexes of these proto-phonemes in Kartvelian and Hamito-Semitic, languages where the original system underwent fewer

[51] Cf. Räs. 46 (Alt. ~ Ural.); Dolg. 7 (Ural. ~ IE).

[52] Cf. Paasonen FUF 7, 25; Trombetti Less. 452 (Ural. ~ IE); Coll. 140 (Ural. ~ IE).

[53] Cf. Bouda UAJb 25, 163 (Alt. ~ Drav.).

[54] Cf. Trombetti Less. 422.

changes. In all the proto-languages, a tendency towards spirantization of these phonemes is observed; eventually, it leads to the loss of the stops. The entire set of stop features is retained only by the reflexes of *q̇ (coalescing with the reflexes of the velar *ḳ in all the languages except Kartvelian). The reflexes of *q̇ develop into labialized stops in Indo-European, Kartvelian, and Hamito-Semitic, and into a palatal sound in Indo-European (the environment is the same as observed in the development of the original velars). Similarly, Kartvelian develops the labialized qw and γw, while Indo-European develops its three laryngeals Ḫ, H, H^{u}.

	Alt.	Ural.	Drav.	IE	Kartv.	HS
*q̇	k'- -k-	k- -?-	k- -?-	ǩ, k, k^{u}	q̇, $q̇^{w}$	ḳ, $ḳ^{u}$
*q	Ø- -?-	Ø- -?-	Ø- -?-	H (Ḫ, H^{u}?)	q, q^{w}	ḫ
*g	Ø- -:Ø-	Ø- -:γ-	Ø-[4+] -Ø-	H (Ḫ, H^{u}?)	γ, $γ^{w}$	g

*q̇[55]

a) in the initial position

7.1. Ural. *kȳma 'heat, zeal, passion' (Finn. kiima 'mating season', Hung. hév, hő 'heat, ardour'; cf. Coll. 89) ~ IE *ǩemH- 'strain (oneself), labour' (OInd. śamnītē, Grk. Perf. χέχμεχα; see Pok. 557) ~ Kartv. *q̇m- 'be thirsty, hungry, starve' (OGeorg. siq̇mil- 'hunger', Svan q̇m 'starve'; see Klimov 212) ~ HS *ḳm' 'burn, exhaust, burn out' (Akkad. qamū).

7.2. Ural. *kūle- 'listen' (Finn. kuule, Lapp gullâ-; see Coll. 93) ~ Drav. *kēḷ- 'listen' (Tamil kēḷ, Kannada kēḷu; see DED 136-137) ~ IE *ǩleu(H)- 'hear' (OInd. śr̥nṓti, Grk. Aor. εχλυον; see Pok. 605-607) ~ Kartv. *q̇ur- 'ear' (Georg. q̇ur-, Chan q̇uǯ-; see Klimov 213)[56].

7.3. Ural. *kōl'e 'testiculus' (Lapp guollâk, Pl. 'scrotum', Komi kẹl'; see Paasonen Beitr. 47) ~ Kartv. *q̇wer- 'testiculus' (Georg. q̇wer-, Chan q̇waǯ-, Svan q̇urnai; see Klimov 210) ~ HS *$ḳ^{u}$l- 'testiculus' (Agau Bilin $ḳ^{u}$ela, Hausa k'walatai, Pl.; cf. Cohen 127).

[55] Only the correspondences involving Kartvelian, which differentiates between *q̇ and *ḳ, are presented.

[56] Cf. Caldwell 593, 618 (Ural. ~ IE ~ Drav.); Keppeн 48 (Ural. ~ IE); Schrader ZII 3, 89 (Ural. ~ Drav.).

7.4. Ural. *kōle- 'die' (Finn. kuole-, Mansi Tavda kāl-; see Coll. 28) ~ Drav. *kol- 'kill' (Tamil kol, Telegu kollu; see DED 143) ~ Kartv. *q̇wil- 'kill' (Mingrel 'wil-, Chan q̇wil-; see Čik. 353)[57].

7.5. Ural. *kyńa or *kańa 'frost' (Nenets hańea, Selkup kāńe; see Castren Verz. 224) ~ Drav. *kiṇ- or *kin- 'cold' (Kolami kinani, Gondi kinan; see DED 111) ~ Kartv. *q̇in- 'freeze, get cold' (Georg. q̇in-, Chan q̇in-, see Klimov 212).

7.6. IE *ḱerm- 'strong smelling plant' (Middle Irish crim 'garlic', Lith. šermùkšnis 'bird-cherry'; cf. Pok. 581) ~ Kartv. *q̇ar-/q̇r- 'stink, have a foul smell' (Georg. q̇ar-/q̇r-, Mingrel 'orad-, 'orid-; see Klimov 209) ~ HS ḳr- 'smell' (Agau Bilin ḳīra 'smell', Hamir xar 'smell'; cf. Reinisch SAW 105, 371).

7.7. Drav. *kūṟ- 'love' (Malayalam kūṟu- 'love', Telegu kūrimi 'friendship, love'; see DED 129) ~ Kartv. *q̇war- 'love' (Georg. q̇war-, Chan q̇or-; see Klimov 210).

7.8. Kartv. *q̇wl- or *q̇wr- 'cry, shout' (Georg. q̇wir-, Chan q̇ur-, Svan q̇ūl-; cf. Klimov 211) ~ HS *ḳwl 'cry, speak' (Ar. ḳwl 'speak', Akkad. ḳālu 'call, cry', Sidamo ḳāle 'voice'; cf. Ges. 706).

b) in the non-initial intervocalic position

7.9. Alt. *t'ōkʌ- 'bend, elbow' (Evenki tōkīkān 'river bend', Middle Mong. toqai 'elbow'; see Poppe 14) ~ IE *(e)lek- 'bend, elbow' (Grk. λοξός 'bent, curved'; Lith. úolektis, f. alkūnė, f. 'elbow'; cf. Pok. 308) ~ Kartv. *d(l)aq̇w- 'curve, elbow', (OGeorg. (n)idaq̇w- 'elbow', 'arch', Georg. dlaq̇w- 'elbow', Chan du(r)q̇u-; see Klimov 74)[58].

*q

a) in the initial position

8.1. Alt. *ala 'bottom' (Turkish alt 'bottom', Yakut alyn 'below', Kor. arai 'under'; see Poppe 75) ~ Ural. *ala 'bottom' (Finn. ala- 'under', Hung. al 'bottom'; see Coll. 2-3) ~ HS *ḫl(j) 'bottom' (South Ar.: Mahri ḫâli 'under', Sokotri ḫlj 'throw down, sit under smth.'; see Leslau 175)[59].

[57] Cf. Caldwell 618; Schrader ZII 3, 89.
[58] Cf. Klimov 74 (IE ~ Kartv.).
[59] Cf. Sauv. 124; Németh NyK 47, 26; Räs. 51; Coll. 143 (Alt. ~ Ural.).

8.2. Alt. *ur or *or 'pit, opening' (Mong. ur 'pit, opening', Turkmen or 'ditch, pit'; see KW 450) ~ Drav. *ur 'pierce, perforate' (Tamil uruwu, Kannada urcu; see DED 50) ~ Kartv. *qwr- 'pierce, gnaw through' (OGeorg. qwr-, Svan qwir-; see Klimov 265) ~ HS *ḫ(w)r 'make holes, hole' (Ar. ḫrr 'tear through, pierce', ḫurr 'hole', Hebr. ḥūr, ḥōr 'hole, pit'; cf. Ges. 255, 219).

8.3. Alt. *odʌ- 'move (fast)' ~ Drav. *āṭṭ-/āṭʌ- 'move (vi, vt)' ~ Kartv. *qad-/qed- 'move (vi, vt)' ~ HS *ḫd- 'move (vi)', see 3.11.

8.4. Alt. *anta 'front side, southern side' (Evenki antaga 'southern slope', Kor. anthä 'front'; cf. SKE 11) ~ IE *Hent- 'front side' (Hitt. ḫant- 'front side', Lat. ante 'before, in front of'; see Pok. 48-50) ~ HS *ḫnṭ or *ḫnt 'front, southern side' (OEgypt. ḫnt 'face', ḫntw 'front, south', Hausa hanči, Pl. hantuna 'nose'; cf. Cohen 107).

8.5. Alt. *abʌ- 'save, help' (Evenki aj- < *awi-, Mong. abura) ~ IE *Heu̯- 'care, help, protect' (Avest. avaiti 'takes care, helps', OIrish con-ōi 'protects'; cf. Pok. 77-78) ~ HS *ḫw- 'guard, protect' (Ar. ḫwl, OEgypt. ḫwj; see Calice 184).

8.6. Alt. *apu-/*abu- 'take, seize' ~ IE *Hep- or *Ħep- 'reach for, take' ~ HS *ḫpꜣ 'seize'; see 11.10.

8.7. Alt. *äl(ʌ) 'arm, hand' (Azerb. äl, Turkmen el) ~ Kartv. *qel-/qal- 'arm, hand' (OGeorg. qel- 'arm', Svan qal 'arm length'; cf. Klimov 264).

8.8. IE *Het- 'go, year' (OInd. átati 'goes', Osc.-Umbr. acno- 'year', Goth. aþnam Dat. Pl. 'for years'; see Pok. 69) ~ HS *ḫṭ- 'stride, step' (Ar. ḫṭw, OEgypt. ḫtj; see Calice 77).

*g

a) in the initial position

9.1. Alt. *ury- 'flow, pour' (Mong. urus- 'flow', Khakas ury- 'pour'; see KW 451) ~ IE Heur-/ *Hu̯er- 'liquid, moist' (Grk. ανανρος 'waterless'/ Oscand. vari, m. 'liquid'; cf. Pok. 80-81) ~ Kartv. *γwar- 'flow, pour, soak' (Georg. γwar- 'flow, pour in abundance', Chan γwar- 'soak'; see Čik. 347) ~ HS *ġwr 'soak, lake, humid lowland' (Ar. ġwr 'sink, absorb, percolate (of water)', ġawr 'lowland', Somali hūr 'lake'; cf. Leslau 308; Cohen 109-110).

9.2. Alt. *üdʌ- 'tie, bind, belt' ~ IE *Heudh-/ Hu̯edh- 'tie, weave' ~ Kartv. *γwed- 'belt' (Georg. γwed-, Svan γwed-; see Klimov 203); see 3.13.

9.3. IE *Herk- 'curved' (Lat. arcus, Gen. arcūs 'arc', Serbo-Cr. ràkita 'broom tree'; cf. Pok. 67-68) ~ Kartv. *γreḳ 'bend, curve, coil (vi, vt)' (Georg. γreḳ, Mingrel γiraḳ-/γiriḳ-/γirḳ; see Klimov 206).

9.4. Kartv. *γame 'night' (Georg. γame 'night', Chan γoma(n) 'yesterday'; cf. Klimov 200-201) ~ HS *ġm- 'dark, cover, extinguish' (Ar. ġmm 'be dark', ġm' 'cover, muffle up', Aram. Syr. 'm' 'extinguish'; see Ges. 579)[60].

b) in the non-initial intervocalic position

9.5. Alt. *tā- or *dā- 'give, transfer, go over (to)' (Evenki dā- 'give bear meat to kinsmen', dāw- 'spread, communicate (of a disease)', Kor. tāgo 'give me'; see SKE 247-248) ~ Ural. *tōFe- 'give, bring' ~ Drav. *tā- 'give' ~ IE *deH^{u}- 'give'; see 2.5.

9.6. Alt. *ǯē- 'eat' (Mong. ǯemü- 'be hungry', Azerb. je- 'eat', Yakut siä- id.; cf. Ram. 65) ~ Ural. *sēγe 'eat' (Mordvin Moksa sevə, Xanty Vax liγ-; see Coll. 117) ~ IE *seH- 'full, get sated' (Grk. αεται 'gets full', Lith. sotùs 'full'; see Pok. 876) ~ Kartv. *ʒeγ-/ʒγ- 'satiate' (Georg. * ʒeγ-/ʒγ-, Chan ʒγ-; see Klimov 235-236)[61].

9.7. Kartv. *beγ- 'enough, rather' (Mingrel baγu, Chan baγun; see Čik. 252) ~ HS *bġ- 'excessive' (Ar. bġ, bġj 'exceed the limits, swell up', Oegypt. b'ḥ 'overflow, be superfluous, abundant'; cf. Ges. 106).

Labials. Three types of labial correspondences allow us to posit three original proto-phonemes (designated by *ṗ, *p and *b). The representation of *p holds special interest because, in Uralic only, it has a specific reflex n the non-initial intervocalic position (Ural. *-p-) that is distinct from the reflexes of *ṗ and *b. In Altaic, Indo-European, Kartvelian, and Hamito-Semitic, the reflexes of *p coalesce with the reflexes of *ṗ and *b; further, these languages often alternate between these respective reflexes within a morpheme. Indo-European and Hamito-Semitic partially retained specific reflexes of this phoneme are IE *b (alternating with *p), HS *p$_{I}$ (alternating with *b).

Kartvelian appears to reflect the initial *ṗ as *ṗ only in the initial prevocalic and in the medial intervocalic position (here the Proto-Kartvelian state is meant); see 10.1, 10.17, 10.18, 10.27, 10.30 (however, cf. p- in 10.13). Before and after the consonant, the reflex is the Kartv. *p; see 10.2, 10.3, 10.4, 10.6, 10.7 (cf. also 10.35). In Indo-

[60] Cf. Trombetti El. 605.

[61] Cf. Dolg. 6 (Ural. ~ IE).

European, *p is the general reflex of *ṗ. The initial *ṗ develops into IE *sp- if the boundary of the first and second syllable (of the original stem) had *-j- or a combination of a sonant and *-j- (these produce palatalized sonants in a number of languages); see 10.2, 10.6, 10.8, 10.9, 10.12, 10.15.

	Alt.	Ural.	Drav.	IE	Kartv.	HS
*ṗ	p‘- -p-	p- -pp-	p- -pp-/-v-	p-, sp-, -p-	ṗ, p	p
*p	p‘-/b- -p-/-b-	p- -p-	p- -pp-/-v-	p/b	p/b	$p_{(1)}$/b
*b	b- -b-	p- -w-	p- -v-	bh	b	b

*ṗ

a) in the initial position

10.1. Alt. *p‘erä or *p‘ärä ‘lower edge, bottom’ (Nanai päräg ‘bottom’, Manchu fere id., Kirghiz ergä ‘lower edge of the tent framework’; see Ramstedt JSFOu 32[2], 4) ~ Ural. *perä ‘point, edge’ (Finn. perä ‘rear, back part’, Mordvin (archaic) piŕa ‘top, head’; cf. Coll. 107) ~ Drav. *pir̲- ‘back edge’ (Tamil pir̲aku ‘back part’, Telegu pir̲u ‘behind’, Kurukh pisā ‘later’; c. DED 280) ~ IE *per- ‘front edge’ (Oind. pra- ‘in front’, purā□ ‘before’, Grk. προ- ‘ante-, before in front’; cf. Pok. 810-816) ~ Kartv. *ṗir- ‘edge, point’ (Georg. ṗir- ‘mouth, face, edge’, ṗirsṗir ‘opposite’, ṗirwel- ‘first’, Chan ṗiǯ- ‘mouth, face, edge; see Klimov 153) ~ HS *pr‘ ‘edge, point’ (Ar. far‘ ‘tip of the ear, tip of the bough’, South Ar.: Sokotri fer‘ ‘edge’, Hebr. pęra‘ ‘main, chief’; see Leslau 341-342)[62].

10.2. Alt. *p‘üjʌ- ‘boil’ (Nanai puju-, Manchu fujä_-, Mong. üji-; see Ram. 54) ~ Ural. *püjʌ- ‘boil, ripen’ (Mordvin pi-, pije- ‘boil’, Hung. fő- id., Kamas pü- ‘ripen, get ready’; cf. Coll. 12) ~ IE *speH(i̯)- ‘ripen, be on time’ (Oind. sphā́yatē ‘increases’, Oslav. spěti ‘ripen, be on time’; see Pok. 983) ~ Kartv. *pw- ‘boil, rise (of dough)’ (Georg. puw- ‘rise (of dough), Svan pw- ‘boil’; cf. Klimov 192)[63].

10.3. Alt. *p‘ölä or *p‘ülä ‘too many, much’ (Nanai puliä ‘excessively’, Middle Mong. hüle’ü ‘extra, superfluous’; cf. Poppe Mong. 42) ~ Ural. *pal(j)ʌ ‘many, much’ (Finn. paljo ‘many, much’, Mari pülä ‘rather many, much’; see Coll. 46) ~ Drav. *pal ‘many, much’ (Tamil pala, Telegu palu; see DED 267-268) ~ IE *pelu ‘many, much’

[62] Cf. Sauv. 7-8; Räs. 34 (Alt. ~ Ural.); Schrader ZII 3, 92 (Ural. ~ Drav.); Anderson 234; Collinder IUS 68 (Ural. ~ IE); Trombetti Less. 463 (IE ~ Kartv.); Dolg. 12 (Alt. ~ Ural. ~ IE ~ Kartv. ~ HS).

[63] Cf. Räs. 13 (Alt. ~ Ural.).

(Grk. πολύς, Goth. filu; cf. Pok. 800) ~ Kartv. *pr 'many, much' (Georg. pr-i-ad-i 'very, many, much', u-pr-o 'more')[64].

10.4. Alt. *p'ebʌ- or *p'ägʌ- 'hot, scorch' (Middle Mong. he'üsije- 'suffer from heat', Mongor xē- 'dry (vt), warm oneself', Kalm. ē- 'scorch, fry'; cf. Poppe Mong. 97) ~ Ural. *pīwe 'warm, hot' (Lapp bivvâ- 'flush', Selkup Narym pō 'warm, hot'; cf. Coll. 6) ~ IE *peHu̯- 'fire' (Hitt. paḫḫur, Dat. paḫḫu(e)ni, Grk. πῦρ; cf. Pok. 828) ~ Kartv. *pxw- 'warm' (Georg. za-pxul- 'summer', Svan lu-pxw id.; cf. Klimov 194) ~ HS *p'w 'fire' (OEgypt. p'w, Logone fū, Kotoko fu; cf. Calice 30)[65].

10.5. Alt. *p'alga 'dwelling place' (Manchu falga 'dwelling place, village', Turkmen āγyl 'cattle pen'; cf. Räs. 5-6) ~ Ural. *palγʌ 'dwelling place, habitation; (Finn. –palva in place-names, Karel. palvi, Hung. falu; see Coll. 77) ~ Drav. *paḷḷ, Telegu palli; see DED 269) ~ IE *pel- 'fortified settlement' (Oind. pūr, Gen. purás, Homer. Grk. πτόλις, Lith. pilìs; cf. Pok. 799)[66].

10.6. Alt. *p'īgä- 'grind' (Evenki Ilimpeya hīgä-, Olča piwä-; cf. Vasil. 475-476) ~ Ural. *pīγʌ- or *pȳjʌ- 'flint, sharp stone' (Finn. pii 'flint', Nenets Bolshaya Zemlya pē̮ 'stone, grindstone, glass'; cf. Coll. 49) ~ IE *(s)p(H)e̯i- 'sharp edge, sharp stone' (OInd. sphyá-, m. 'splinter', Grk. σπίλος 'rock; see Pok. 981-982) ~ Kartv. *pxa or *pga 'spike, cartilage' (Georg. pxa 'awn, gristle', Svan pxa 'fishbone, young snake'; cf. Klimov 194).

10.7. Alt. *p'örʌ- or *p'ürʌ- 'give birth, offspring' (Evenki hurū 'family', Nanai puri- 'give birth', Mong. üre 'child'; cf. Vasil 499) ~ Ural. *perʌ 'relative' (Ludic Karel. pereh 'family', Nenets pērene 'spouse's close relative'; see Coll. 48; SKES 524) ~ Drav. *per̲- 'give birth, get' (Tamil per̲u, Kannada per̲-; see DED 292-293) ~ IE *per- 'give birth, hatch' (Lat. pariō, Perf. peperī 'give birth', Lith. perėtìi 'hatch'; cf. Pok. 818) ~ HS *pr- 'be fertile', OEgypt. pr.t 'fruit', Angas pār 'child'; cf. Cohen 169)[67].

10.8. Ural. *puńa-/puna- 'spin, twist, wind' (Lapp bodnje- 'twist', Xanty pŏ□- 'wrap'/Lapp bodne- 'spin, twist', Hung. fon- 'spin'; cf. Coll. 109, 51) ~ Drav. *puṇ- or *poṇ- 'tie, bind' (Tamil puṇai, puṇar 'bind, bring/put together', Kannada poṇar 'be

[64] Cf. Caldwell 598, 621 (Alt. ~ Ural. ~ Drav. ~ IE); Sauv. 16; Räs. 50; Coll. 146 (Alt. ~ Ural.); Coll. IUS 67 (Ural. ~ IE): Dolg. 11 (Alt. ~ Ural. ~ IE).

[65] Cf. Dolg. 13 (Ural. ~ IE ~ HS).

[66] Cf. Sauv. 17-18; Räs. 5-6, Coll. 147 (Alt. ~ Ural.).

[67] Cf. Moller 202-203 (IE ~ HS).

bindable'; see DED 277) ~ IE *(s)pen- 'spin, plait' (OHG. spinnan 'spin', Lith. pìnti 'plait'; cf. Pok. 988) ~ HS *pn- 'wind, turn (vi, vt), reel' (Hebr. pnh 'rotate (vi, vt)', OEgypt. pn' 'turn (vi, vt)', Hausa funi 'wind, reel'; see Calice 62).

10.9. Ural. *pil'ʌ- 'split, break' (Udmurt pil'- 'split, cut off', Nganasan filimia 'piece, fragment'; see Coll. 49) ~ Drav. *piḷ- 'split, break, burst' (Tamil piḷ 'burst, break', piḷa 'split', Gondi piṛ- 'burst'; see DED 279) ~ IE *(s)pel- 'split, burst' (OInd. phálati 'bursts', OHG. spaltan 'split'; see Pok. 985-987) ~ HS *pl- 'split' (Ar. filḫ, flḥ, fl' 'split', OEgypt. pḫ3 id., Copt. pōlḥ 'wound'; cf. Calice 62; Cohen 169).

10.10. Alt. *p'adak 'foot, leg' ~ Drav. *paṭṭʌ 'foot, step' ~ IE *ped- 'foot, leg'; see 2.23.

10.11. Alt. *p'äkü or *p'ekü 'hot' (Evenki häkū, Olča päkù, Nanai päku; see Vasil. 505) ~ Ural. *päkke 'hot' (Lapp bak'kâ 'heat, hot', Nganasan fekagā, fekutea) ~ IE *pek^{u}- 'fry, boil) (OInd. pácati, OSlav. pekǫ; see Pok. 798)[68].

10.12. Alt. *p'ür'ʌ 'tear up, grind' (Nanai purtu 'chip, crumb', Middle Mong. hürü- 'grind, polish by grinding', OTurk. üz- 'tear'; see Ram. 54) ~ IE *(s)per- 'tear (vi, vt)' (Grk. σπαράσσω 'I tear', Lith. spùrti 'fray, wear out', Russ. поро́ть undo (of cloth), rip'; cf. Pok. 992).

10.13. Ural. *puča 'down, feathers' (Lapp boc'ce 'feathers, down', Mari pəš-tâl 'feathers'; Toivonen FUF 19, 207) ~ IE *pous- 'bodily hair, down' (Lith. paustìs 'animal hair', Russ. пух 'down'; see Fraenkel 554) ~ Kartv. *pačw- 'bodily hair' (Georg. pačw-).

10.14. Ural. *päłä 'side, half' (Lapp bælle 'side, half', Xanty pełək 'half'; see Coll. 48) ~ Drav. *pāl 'part, share' (Tamil pāl, Telegu pālu; see DED 274) ~ IE *pol- or *pəl- 'side, half' (Alb. palë 'side', OSlav. polъ 'side, half'; cf. Pok. 986)[69].

10.15. Ural. *pal'a- 'burn (vi), freeze (vi)' (Finn. pala- 'burn', Hung. fagy- 'get cold'; see Coll. 106) ~ IE *paḷ- 'glitter' (Tamil paḷapaḷa 'glitter', Kannada paḷakane 'glittery'; see DED 269) ~ IE *(s)pel- 'flame, blaze, glitter' (Arm. p'ailem 'I glitter', Latv. spuĩguot 'glitter, sparkle', OSlav. poléti 'flame'; cf. Pok. 987, 805)[70].

10.16. Ural. *pata 'pot', ~ Drav. *patal- 'pot' ~ IE *pod- 'vessel, pot'; see 2.18.

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[68] Cf. Ram. 93 (Alt. ~ Ural.).

[69] Cf. Schrader ZII 3, 91 (Ural. ~ Drav.).

[70] Cf. Schrader ZII 3, 91 (Ural. ~ Drav.); Dolg. 11 (Ural. ~ IE).

10.17. Ural. *pane- 'put, place' (Finn. pane- Xanty păn-; see Coll. 46) ~ Kartv. *ṗan- 'set against, lean against' (Mingrel pon-) ~ HS *pn 'put, give' (Musgoi fána 'put', Angas pān 'give, hand in').

10.18. IE *per- 'beat, cut' (Arm. hari 'I have hit', Alb. pres 'I chop, cut', Lith. perti 'beat, hit'; see Pok. 818-819) ~ Kartv. *ṗir- 'whet' (Georg. ṗir-, Mingrel ṗir-; cf. Klimov 154) ~ HS *pr- 'cut, trim, break into pieces' (Akkad. parū 'cut out, cut off', parāru 'break).

10.19. Alt. *pʿalʌ 'molar' (Olča palu, Nanai paloa; cf. Ram. 55-56) ~ Drav. *pal 'tooth' (Tamil pal, Gondi pal; see DED 267)[71].

10.20. Alt. *pʿilä 'lowland' (Evenki Barguzin hiläkān 'open space in the mountains', Kor. pĕl 'plain'; see Ramstedt SKE 196) ~ IE *pelH- 'broad and flat, lowland' (Hitt. palḫiš 'broad', OSlav. polje 'field'; see Pok. 805-806).

10.21. Alt. *pʿatʌ 'field' ~ IE *petH- 'spread out (vi, vt), lay'; see 1.32.

10.22. Alt. *pʿulʌ 'asp, poplar' (Evenki hula 'asp, poplar', Nanai polo id., Mong. ulijasun 'asp'; see Ram. 55) ~ IE *pel- 'poplar, adlder' (Osset. Digor färwä 'alder', Grk. (glosses) απελλόν 'black poplar', Lat. pōpulus 'poplar'; cf. Ernou-Meillet 924)[72].

10.23. Alt. *pʿirʌ- 'appeal to deity' (Manchu firu- 'pray', Middle Mong. hirü'e 'bless', Kor. pir- 'ask, pray'; see Ram. 53-54) ~ IE *perḱ-/preḱ- 'ask, ask questions' (OHG. fergōn/OSlav. prositi; see Pok. 821-822).

10.24. Alt. *pʿökärˈ 'bull, cow' (Evenki hukur 'cow', Middle Mong. hüker 'bull', Turkmen dial. (h)ökiz id.; cf. Ram. 51) ~ IE *peḱu 'cattle' (OInd. paśu, OHG. fihu; cf. Pok. 797)[73].

10.25. Ural. *paśe or *pośe 'penis' (Lapp buoccâ, Hung. fasz; cf. Coll. 74) ~ IE *pes- 'penis' (OInd. pásas, n., OHG. fasel; see Pok. 824)[74].

10.26. Ural. *pȳńa- 'hoard, watch cattle' (Lapp binnje- 'keep, watch', Enets Xantay fonenje- 'tend cattle, watch after'; see Coll. 6) ~ IE *poHi̯- 'pasture' (OInd. pāti 'pastures', Grk. πῶυ 'herd', Olith. píemuo 'herdsman'; see Pok. 839).

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[71] Cf. Bouda UAJb 25, 161.

[72] Cf. Trombetti EEl. 390.

[73] Cf. Ram. 18.

[74] Cf. Sinor T'P 37, 233.

10.27. IE *peu(H)- 'cut, beat' (Lat. paviō 'I beat, pound', Lith. piáuti 'cut'; cf. Pok. 827) ~ Kartv. *ṗu- 'cut, slash, chop' (Georg. ṗ(u)- 'cut, slash, chop', Svan nā-ṗu- 'piece'; see Klimov 154)[75].

b) in the non-initial intervocalic position

10.28. Alt. *t'apa- 'get, hit, find, guess' ~ Ural. *tappʌ- (along with *tapʌ-) 'find, suitable, happen' ~ Drav. *tāpp- 'suitable, appointed time' ~ IE *top- 'get somewhere, fixed place, guess' ~ HS *tp 'watch closely; appropriate' (OEgypt. tpjw 'most preferable', Angas tăp 'hurry, be attentive, look after'); see 1.3.

10.29. Alt. *t'apʌ- 'soil, dirty' ~ Ural. *tappʌ- 'feel by touch, sculpture, shape' ~ Drav. *tapp- 'feel (touch)' ~ IE *tep- 'anoint, dip' ~ HS *ṭp-/tp- 'besmear, soil'; see 1.1.

10.30. Alt. *lypa- 'stick to (vi, vt), besmear' (Evenki Zeya lipa- 'lubricate', Mong. niga 'stick (vt)', Turkmen jāpyš- 'stick (vi)'; cf. Poppe 39) ~ IE *leip- 'grease, stick (vi)' (OInd. limpáti 'lubricates', Lith. lìpti 'stick to'; see Pok. 670-671) ~ Kartv. *liṗ- 'slippery, smooth' (Georg. liṗ- 'smooth, icy surface').

10.31. Alt. *kapa- or *k'apa- 'close' (Mong. qaga- 'close', Turkmen qapy 'door'; see Ram. 89-90) ~ Drav. *kapp- 'cover' ~ HS *kp 'cover, wrap'[5+].

10.32. Ural. *käppä 'paw' (Finn. käppä 'paw', Mordvin Mokša käpä 'barefoot'; see SKES 260) ~ IE *ḱep- 'paw, hoof' (OInd. śaphás 'paw with claws, hoof', OHG. huof 'hoof'; see Pok. 530) ~ HS *ḳp or *kp 'hoof, foot' (Hausa k'afa 'foot', Galla kope 'hoof'; cf. Greenberg 62).

10.33. Alt. *ǯapa- 'seize, hold, be engaged with smth., be busy' (Olča ǯapa- 'seize, get hold', Turkmen jap- 'make, build'; see Ram. 64) ~ IE *sep- 'hold in hand, be busy' (Avest. hap- 'hold', Grk. -επω 'I prepare, work upon smth.'; see Pok. 909).

10.34. Alt. *k'öpä- or *köpä- 'foam (n, v)' (Mong. köge- 'ferment, foam', Turkish köp- 'foam', Turkmen köpik 'foam'; see Ram. 113) ~ IE *keup-/kṵep- 'boil, evaporate, vapor' (Lat. vapor 'vapor', Lith. kvãpas 'spirit, smell', OSlav. kypěti 'boil'; see Pok. 596-597).

10.35. IE *kep- 'chop, dig' ~ Kartv. *ḳap-/ḳp- 'chop'; see 4.15.

10.36. *gup- 'burrow, cavity' (Grk. γύπη 'cavity', Middle High Germ. kobe 'stall, hollow (of tree), cavity'; cf. Pok. 395) ~ HS *gwp 'hollow, empty, cavity' (Ar. gwp 'hollow', Somali gōf 'empty pit'; cf. Ges. 134).

[75] Cf. Dolg. 13.

*p

a) in the initial position

11.1. Ural. *peδä- 'pierce' ~ Drav. *peṭṭ- 'stick into, insert' ~ IE *bedh-/bhedh- (probably from *pedh, cf. 13.6) 'stick into, pierce, dig' (Gr. βόθρος 'pit'/Lat. fodiō 'I dig'; cf. Pok. 113-114) ~ HS *p$_{\text{I}}$d-/bd- 'split, break through, tear apart' (Aram. Syr. pd' 'split', OEgypt. fd 'tear out', fdk 'tear off, cut off', Beja feḍig 'split'/ Hebr. bęḏęk 'gap in wall', Afar bodṓ 'hole'; cf. Calice 32; Cohen 124); cf. 3.12.

11.2. Alt. *p'al'-/bal'- 'foot, sole' (Nanai palgan 'foot'/Turkish başmak 'shoe'; cf. Ram. 52) ~ Ural. *pel'kä or *päl'kä 'foot, hoof' (Mordvin pil'ge 'foot', Mansi Konda pöäl'kent 'false hoof', cf. Coll. 108) ~ Kartv. *perq-/berq- 'foot, leg, step' (OGeorg. perq- 'foot, leg'/Svan bārq- 'step'; cf. Klimov 50).

11.3. Alt. *p'iš-/biš- 'boil (vi), stew, turn sour' (Kalm. is- 'turn sour'/Turkmen biš- 'boil, stew', Chuvash piś- id.) ~ Ural. *pišä- 'fry' (Lapp bâsse-, Komi pęž-; see Coll. 74) ~ HS *p$_{\text{I}}$š-/bš- 'boil (vi, vt), ripen' (OEgypt. fśj 'boil (vt)', Hausa fasú 'ripen'/ Hebr. bšl 'boil (vt)', bāšēl 'ripe', Tuareg ebsí 'boil (vt)'; cf. Cohen 174).

11.4. Ural. *pele- 'be afraid' (Lapp bâllâ-, Hung. fél-; see Coll. 47) ~ IE *pel- 'shake (vi, vt), frighten, get frightened' (Grk. πάλλω 'I shake', Oiceland. fæla 'frighten'; cf. Pok. 801) ~ HS *pl-/bl- 'be afraid, frighten' (Akkad. palāḫu 'be afraid'/Hebr. blh 'scare', bhl 'get scared'; cf. Ges. 921, 100, 85)[76].

11.5. Ural. *putʌ 'rectum'$^{6+}$ ~ HS *p$_{\text{I}}$wt 'anus, vulva'; see 1.30.

11.6. Kartv. *prç/brç- 'tear (vi, vt)' (Georg. priç-, preç-/Chan bruç-, briç-; cf. Klimov 190) ~ HS *prṣ or *prḏ 'tear, break' (Hebr. prṣ 'tear, break', Akkad. parāṣu 'break the wall'; cf. Ges. 661).

b) in the non-initial intervocalic position

11.7. Alt. *lapʌ/labʌ 'flat, leaf' (Orok lapu^{n} 'place for the foot on the ski board', Turkmen yapraq 'leaf'/Daghur lawā 'petal'; cf. KW 272) ~ Ural. *lapa 'flat surface' (Finn. lapa 'shoulder, shoulder-blade', Selkup laba 'oar'; see Coll. 31) ~ IE *lep- 'flat, leaf' (Goth. lōfa, m. 'palm', Lith. lãpas 'leaf'; cf. Pok. 679) ~ HS *lp- 'flat, leaf' (Berber lfs 'become flat', Logone lefī 'leaf').

[76] Cf. Collinder IUS 68; Dolg. 11 (Ural. ~ IE); Möller 204 (IE ~ HS).

11.8. Alt. *t'äb(ʌ)- or *täbʌ-, däbʌ- 'warm, hot' (Kor.: South tẹw-, North tẹb- 'be warm, hot'; cf. Ramstedt SKE 263) ~ IE *tep- 'warm up, warm' (OInd. tápati 'warms smth., burns (vi)', OSlav. toplъ 'warm'; see Pok. 1069-1070) ~ Kartv. *ṭ(e)p-/ṭ(e)b- 'warm (vi, vt)' (Ogeorg. ṭp-, ṭep-/Chan ṭub-, ṭib-, Svan ṭbid-; cf. Klimov 179) ~ HS *dp$_1$- 'heat, sweat' (Ar. dif' 'heat', 'warm clothes', OEgypt. fd.t 'sweat'; cf. Cohen 153)[77].

11.9. Alt. *söp(ʌ)- or *süp(ʌ)- 'sweep (away)' (Evenki sup- 'heap up', Turkmen süpir- 'sweep', Kor. North. šẹp 'heap of leaves'; see Ramstedt SKE 229) ~ IE *sụep-/sụeb- 'sweep, scatter, spill' (OInd. svapū́ 'broom', Oiceland. sōfl id./Oeng. geswōpe f. 'waste, garbage'; see Pok. 1049).

11.10. Alt. *apu-/abu- 'take, seize' (Manchu afu- 'grasp'/Mong. ab(u)- 'take, fetch', Turkish avuç 'handful'; see KW 19) ~ IE *Hep- or *Ħep- 'reach for smth, seize, take' (OInd. āpnṓti 'reaches', Hitt. ḗpmi 'I seize, take'; cf. Pok. 50-51) ~ HS *ḫp$_1$' 'seize' (Ār. hf' 'be caught by force, be torn out', OEgypt. hf' 'seize, fist'; see Calice 76).

11.11. Alt *sipü-/sibʌ- 'filter, sift, ooze' (Mong. sigü- 'filter, sift'/Mong. sibeni- 'leak, ooze'; cf. Ramstedt SKE 49) ~ IE *seip-/seib- 'drip, filter, sift' (OHG. sib 'sieve', Serbo-Cr. sípiti 'drizzle'/Oeng. sīpian 'drip'; see Pok. 894) ~ HS *šp$_1$k 'pour, strew' (Ar. sfk 'pour out', Hebr. špk 'pour out, strew', OEgypt. śft 'oil brand'; see Calice 197).

11.12. Alt *gübä- 'convex, curved, crooked' ~ IE *gheub- 'bend, curved' ~ HS *g(w)b 'bend, convex'; see 6.6.

11.13. Alt. *kop(ʌ)-/kob(ʌ)- 'bark, strip off bark' (Turkmen gopur- 'strip bark'/Oturk. qobuq 'bark of tree'; cf. KW 201) ~ Ural. *kopa 'bark, skin' (Est. kõba 'fir-bark', Nenets hōba 'bark, skin'; see Coll. 25).

11.14. Kartv. *tip-/tib- 'mow, hay' ~ HS *tb- 'cut, straw'[7+].

*b

a) in the initial position

12.1. Alt. *burgʌ 'snowstorm, tempest' (Evenki burga 'snowstorm', Mong. borugan 'bad weather', Turkmen bōran 'storm', Yakut burxān 'snowstorm'; cf. Poppe 21) ~ Ural. *purkʌ 'snowstorm' (Finn. purku, Xanty pŏrki; see Coll. 52) ~ IE *bhe(u)r- 'storm, be stormy' (Lat. furō 'I am in fury', OSlav. burja 'storm'; see Vas. 1 , 151) ~ Kartv. *burγw- 'snowstorm' (Svan burγwīna).

[77] Cf. Čik. 237; Vogt NTS 9, 337; Klimov 180 (IE ~ Kartv.).

12.2. Alt. *burʌ- 'whirl, bore, drill' (Evenki buru 'whirlpool', Turkish bur- 'whirl, crease', burgu 'borer') ~ Ural. *pura- 'bore' (Finn. pura 'borer', Hung. fúr- 'bore, drill'; see Coll. 52) ~ IE *bher- 'bore, drill' (Lat. forō, OScand. bora; see Pok. 134-135) ~ HS *br- 'bore, hole' (Geez brr 'bore, dril', Aram. br' 'drill, cut', OEgypt. b3b3 'hole'; cf. Cohen 172-173)[78].

12.3. IE *bher- 'give birth, child' (Alb. bir 'son', Goth. baíran 'give birth'; cf. Pok. 128-132) ~ HS *br- 'give birth, create, child' (South Ar.: Sokotri br' 'give birth', Arma. bar 'son', Berber Ghat abarad 'child'; cf. Ges. 899)[8+].

12.4. Drav. *pol- 'bloom, ripen, abound' (Tamil poli 'bloom, abound', Tuluva poli 'growth, abundance'; see DED 300) ~ IE *bhel(H)- 'leaf, bloom, flower' (Grk. φύλλον 'leaf', OHGerm. bluojen 'bloom'; see Pok. 122) ~ Kartv. *bal- 'leaf' (Svan bale 'leaf') ~ HS *'bl 'leaf, vegetation' (Ar. 'ubl 'young foliage, aftergrass', Galla bála 'leaf'; cf. Ges. 5).

12.5. Alt. *bylut 'cloud' (Turkmen bulut, Yakut bylyt; cf. Räsänen Mat. 61) ~ Ural. *pilwe 'cloud' (Finn. pilvi, Komi piv; see Coll. 49) ~ HS *bl- 'cloud' (Beja bile 'sky, rain', Logone bə́lukwi, bulki 'cloud'; cf. Cohen 175-176)[79].

12.6. Alt. *bylka- 'swell, flow over' (Mong. bilqaji- 'swell, flow over', Kirghiz bylqy- 'be excessive'; see KW 45) ~ IE *bhelH- 'blow (vt), swell (as with air)' (Lat. flō 'I blow', OHGerm. blājan 'blow, distend', OSwed. bulin 'swollen'; see Pok. 122) ~ Kartv. *bēl- or *bēr- 'blow, swell' (Georg. ber- 'blow, fill up', Svan Lašxi bēl- 'swell up, distend'; cf. Klimov 50).

12.7. Drav. *pic- 'crush, knead, peel' (Tamil picai 'knead, shell (of corn) with fingers', Kota pick- 'crush, pinch'; see DED 275) ~ Kartv. *bič- 'crumble, break' (Georg. bič- 'crumble', Svan bičḳw- 'break (of bread, apple)', beč̣ḳw- 'break up (vi)'; se Klimov 52) ~ HS *bḏ' 'crumble, break bread' (Ar. bḏ', Hebr. bṣ'; cf. Ges. 109).

12.8. IE *bherR̥- 'blaze up, glisten' (OInd. bhrā́śatē 'blazes, glitters', OIceland. braga 'sparkle'; cf. Pok. 141-142) ~ Kartv. *brc̣q̇- 'glitter, sparkle' (Georg. brc̣q̇in- 'glisten', Svan na-berc̣q̇ 'sparkle'; cf. Klimov 50) ~ HS *brḳ 'glitter, lightning' (South Ar.: Sokotri brq 'glare', Hebr. bārāq 'lightning'; see Leslau 97).

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[78] Cf. Sinor T'P 37, 235 (Alt. ~ Ural. ~ IE); Sauv. 48-49 (Alt. ~ Ural.); Wiklund MO, 1, 59-60 (Ural. ~ IE); Möller 33 (IE ~ HS).
[79] Cf. Räs. 30 (Alt. ~ Ural.).

12.9. Alt. *byra 'river, creek' (Evenki bira 'river', Nanai bera^{n} 'creek'; see Cinc. 297) ~ Drav. *pīr- 'flow, ooze' (Tamil pīr- 'abundant flow of milk', Tuluva pīru- 'secrete, percolate'; see DED 281).

12.10. Alt. *bor'a 'bear brown, grey' (Middle Mong. bora 'grey', Turkmen boz 'bear brown, grey'; see Poppe 20) ~ IE *bher- 'bear brown, brown' (OHGerm. bero 'bear', Lith. bė̃rās 'brown'; see Pok. 136-137)[80].

12.11. Alt. *bary- 'take' (Mong. bari-, Mongor bari-) ~ IE *bher- 'carry, take' (OInd. bhárati 'he carries', OSlav. berǫ 'I take'; see Pok. 128-132)[81].

12.12. Alt. *bökʌ- 'bent, crooked' (Evenki bukä- 'bow to', Mong. bökän 'camel's hump', Cagatay bök- 'bend, goggle'; cf. KW 55) ~ IE *bheug-/bheugh- 'bend' (OInd. bhujáti/Goth. biugan; see Pok. 152-153).

12.13. Alt. *bü- 'be' (Evenki bi-, Mong. bü-; cf. Ram. 57) ~ IE *bheu(H)- 'be, become, grow' (OInd. bhávati 'he is', Lat. fuī 'I was'; cf. Pok. 146-150)[82].

12.14. Alt. *bāl' 'wound' (Turkmen bāš 'ulcer, sore', Yakut bās 'wound') ~ IE *bhel- or *bhol- 'ache' (Goth. balwjan 'torture', OSlav. bolěti 'ache'; see Vas. 1, 105; Feist 79).

12.15. Alt. *ber(ʌ)- 'give' (Evenki bärin- 'give way (in play)', Azerb. ver- 'give', Turkmen ber- id.) ~ Kartv. *bar-/br- 'give' (Svan br-/bar-).

12.16. Alt. *bylga 'throat, pharynx' (Evenki bilga, Nanai belga; see Vasil. 54) ~ HS *blʿ 'throat, swallow' (Ar. blʿ 'swallow', Beja bala 'throat'; see Cohen 176)[83].

12.17. Alt. *baka- 'look, find' (Evenki baka 'find', Turkish bak- 'look, look for', Turkmen bak- 'glance at') ~ HS *bḳ- 'see, look for' (Hebr. bqš 'look for', Kefa beḳ 'see'; cf. Cerulli 4.413).

12.18. Ural. *pośʌ- 'crush, shatter into pieces' (Udmurt paś mun 'shatter into fragments, fall and scatter', Kamas buzoj 'crack'; see Coll. 47) ~ IE *bhes- 'rub' (OInd. bábhasti 'chews', Grk. φάω 'I rub'; see Pok. 145-146).

12.19. Ural. *pakʌ- 'run away' ~ IE *bheg^{u}- 'run away'; see 5.23.

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[80] Cf. Trombetti El. 400-401; Dolg. 12.

[81] Cf. Ramstedt JSFOu 53^{1}, 23; Dolg. 12.

[82] Cf. Ramstedt JSFOu 53^{1}, 23.

[83] Cf. Dolg. 12.

12.20. IE *bhredh- or *bhred- 'wade, wander, rave' (Lith. bredù 'I wade', Russ. броди́ть 'wander, roam', brédit' 'rave, be delirious'; see Pok. 164) ~ Kartv. *bord- or *bod- 'wane, rave' (Georg. bod- 'rave, wander', Mingrel bordiš 'rave'; cf. Klimov 52)[84].

12.21. IE *bhendh- 'bind, tether' (OInd. bdhanā́ti, Goth. bindan; see Pok. 127) ~ HS *bnd 'tie round, bind' (OEgypt. bnd 'tie round', Logone 'bə́n 'tie, tether').

12.22. Kartv. *beγ- 'enough, rather' ~ HS *bg- 'excessive'; see 9.7.

b) in the non-initial intervocalic position

12.23. Alt. *labʌ- 'carry in teeth' (Evenki lawādā-, Manchu labsi-; see Vasil. 232) ~ IE *labh- 'grasp, seize' (OInd. lábhatē 'grasps', Grk. λάφυρον 'prey, catch'; see Pok. 652) ~ HS *lbk 'grasp, strong' (South Ar.: Sokotri lúbak 'strong', Aram. lbk 'seize'; see Leslau 228).

12.24. Alt. *čabʌ- 'glue, clay' (Evenki čawiŋa 'clay', Mong. čabagu 'glue') ~ Drav. *cavʌ- 'clay' (Tamil cavaṭu, Telegu cauḍu; see DED 156) ~ Kartv. *ç$_1$eb- 'glue (vt)' (Georg. ẹeb-, Chan čab-; see Klimov 248).

12.25. Alt. *goby 'desert, steppe' ~ HS *gbb 'lowland, field, desert'; see 6.14.

12.26. Ural. *tuwʌ 'lake' (Komi ty, OHung. tow, Kamas tu; cf. Coll. 62) ~ Drav. *tuvʌ- 'dip' (Tamil tuvai, Malaylam tuve-; see DED 219) ~ Kartv. *ṭba 'lake, deep' (Georg. ṭba, Chan ṭoba, Svan ṭuba; see Klimov 179)[85].

12.27. IE *leubh- 'crave, love' (OInd. lúbhyati 'craves', OSlav. ljubiti 'love'; cf. Pok. 683-684) ~ HS *lwb 'feel thirsty', OEgypt. ỉbj; see Cohen 184).

12.28. IE *dhabh- or *dhebh- 'appropriate, adroit' (Lat. faber 'adroit, craftsman', OEng. gedēfe 'appropriate', OSlav. udobь 'convenient'; see Pok. 233-234) ~ HS *ṭb 'pleasant, good' (Ar. ṭjb 'be pleasant, good', Hebr. ṭwb id., Akkad. ṭābu id.; see Ges. 272)[86].

Irregular reflexation. Most deviations from the regular correspondences are found in Indo-European. These deviations are mostly confined to cases where the regular phonetic development is expected to result in the non-aspirated voiceless - aspirated voiced cluster, a combination that is forbidden in Indo-European. The respective cluster

[84] Cf. Klimov 52.
[85] Cf. Bouda Lingua 2, 296.
[86] Cf. Möller 51.

is eliminated by the following transformations: (a) aspirated voiced → non-aspirated voiced (13.1, 13.2), (b) aspirated voiced → non-aspirated voiceless (13.3), (c) non-aspirated voiceless → aspirated voiced (13.4, 13.5, 13.6, 13.7), (d) non-aspirated voiceless → non-aspirated voiced (13.7). In 13.8, (c) is observed in combination with either (a) or (b).

13.1. IE *ḱerd- 'heart' (expected: *ḱerdh-): Kartv. *mḳerd- 'breast' (see 4.14) indicates *-d- (> IE *dh).

13.2. IE *gup- 'burrow, cavity' (expected: *ghup-): HS *gwp 'hollow, cavity' (see 10.36) indicates *g- (> IE *gh).

13.3. IE *ket- 'primitive building, closet', see 4.5 (expected: *kedh-): HS *ḳd 'build, shape pottery' and Kartv. *ḳed- 'build' (3.15) indicate *-d- (> IE *dh).

13.4. IE *dheg^{u}h- 'burn' (expected: *teg^{u}h-): Alt. *t'oga 'fire' (see 6.21) indicates *ṭ- (> IE *t).

13.5. IE *dhabh- 'appropriate, adroit' (expected: *tabh-): HS *ṭb- 'pleasant, good' (see 12.28) indicates *ṭ- (> IE *t).

13.6. IE *bhedh- 'push into, pierce, dig' (expected: *pedh-, along with regular attested *bedh-): HS *p$_{1}$d-/bd- 'split, break through, tear apart' (see 11.1) indicates *p- (> IE *p-/b-).

13.7. IE *bheug-/bheugh- 'bend' (expected: *bheuk-): Alt. *bökʌ- 'bent, crooked' (see 12.12) indicates *-ḳ- or *-q̇- (> IE *k).

13.8. IE *dheub-/dheup- 'deep' (expected: *teubh-), OHG. tiof 'deep'/OIceland. dȳfa 'dip' (see Pok. 267-268): Kartv. *ṭba 'lake, deep' (see 12.26) indicates *ṭ- (> IE *t) and *-b- (> IE *bh).

If interpreted with regard to similar processes of IE dissimilation, the following two cases may indicate that early Indo-European had three series of sibilants (developing from affricates) and three series of laryngeals. This corresponds to the original state retained in Kartvelian (for the affricates) and Hamito-Semitic (for the pharyngeals, which correspond to the IE laryngeals).

13.9. IE *peis- 'crush, splinter, squeeze' (expected: *bheis-), OInd. pináṣṭi, Lat. pisō (see Pok. 796): Kartv. *biǯ- 'crumble, break' (see 12.7) indicates the original combination of the voced *b- (> IE *bh) and a glottalized affricate.

13.10. IE *g^{u}erH- 'swallow, throat' (expected: *g^{u}herH-), OInd. gṛṇā́ti 'devours', Grk. βάραθρον 'abyss, pit' (see Pok. 474-476): HS *g^{u}r' 'throat, swallow' (see 6.3)

indicates the original combinations of the voiced *g- (> IE *g^{u}h-) and a pharyngeal (possibly glottalized).

Also, a case was found where two voiced consonants in the root (a cluster that is also unusual for Indo-European), might have been eliminated.

13.10a. IE. *təg- or *taĝ- 'touch, grasp, seize', Grk. τεταγών 'grasping', Lat. tetigī, Perf. 'touched' (see Pok. 1054-1055), along with the expected *deg-, which corresponds to Alt. *täg(ʌ)- 'touch' (see 2.2, 5.19).

In Hamito-Semitic, some cases exist where non-glottalized voiceless (13.11, 13.12) or voiced (13.13) occur instead of the expected glottalized voiceless. The reasons for these deviations are unclear.

13.11. HS *t-, 2 Sing. prefix (expected: *ṭ-): Alt. *t'y 'thou', IE *tū, te- (see 1.8) indicate *ṭ-.

13.12. HS *k(w)l 'all, each' (expected: *ḳ(w)l), Akkad. kullat, f. 'all', OEgypt. ṯnw 'quantity, each' (cf. Cohen 115): Kartv. *q̇wl 'all', Georg. q̇owel- 'all', Mingrel 'ir 'each' (cf. Klimov 213) indicate *q̇- (> HS *ḳ).

13.13. HS *dp_1- 'heat, sweat' (expected: *ṭp_1-): IE *tep- 'make warm, warm', Kartv. *ṭp-/ṭb- 'give warmth, warm onself' (see 11.8) indicate *ṭ-.

In Kartvelian, a number of unclear cases are also observed.

13.14. Kartv. *karb- 'belly' (expected: *ḳarb-): Alt. *k'ar(b)yn 'belly', IE *kerṷ- 'belly', HS *ḳrb 'belly, guts' (see 4.4) indicate *ḳ-.

13.15. Kartv. *ṗula 'cloud, steam' (expected: *bula), Mingrel ṗula 'steam', Chan ṗula 'cloud' (see Kipšidze 299): Alt. *bylut 'cloud', HS *bl- 'cloud' (see 12.5) indicate *b-.

In Uralic, geminates were shortened in trisyllabic derivatives in -eδa.

13.16. Ural. *sokeδa 'blind' (expected: *sokka), Finn. sokea, Veps. soged, along with Alt. *sokʌ, Mong. soqur, Turkmen soqyr (see KW 329); in Uralic, however, traces of the form expected might be found, cf. Finn. sokko 'blind man' (in blind man's buff)', sokko- 'blind' (in compound words).

13.17. Ural *lipeδä 'slippery' (expected: *lyppʌ), Finn. lipeä, Veps. libed (see SKES 297), along with Alt. *lypa- 'stick to', IE *leip- 'stick to, Kartv. *liṗ- 'slippery'

(see 10.30); the form expected can be traced in Finn. lippakieli (parallel with lipakieli) 'talkative'.

The original stop system and its further development in the proto-languages.

The original stop stystem is shown in the following table.

	Alt.	Ural.	Drav.	IE	Kartv.	HS
*ṗ	p'- -p-	p- -pp-	p- -pp-/-v-	p-, sp- -p-	ṗ, p	p
*p	p'-/b- -p-/-b-	p- -p-	p- -pp-/-v-	p/b	p/b	$p_{(1)}$/b
*b	b- -b-	p- -w-	p- -v-	bh	b	b
*ṭ	t'- -t-	t- -tt-	t- -t(t)-/ṭ(ṭ)-	t	ṭ	ṭ
*t	t- -d-	t- -t-	t- -t(t)-/ṭ(ṭ)-	d	t	t
*d	d- -d-	t- -δ-	t- -t(t)-/ṭ(ṭ)-	dh	d	d
*ḳ	k'- -k-	k- -kk-	k- -kk-/-k-	ǩ, k, $k^{ų}$	ḳ, ḳw	ḳ, $ḳ^{ų}$
*k	k- -g-	k- -k-	k- -kk-/-k-	ĝ, g, $g^{ų}$	k, kw	k, $k^{ų}$
*g	g- -g-	k- -:γ-	k- -:Ø-	ĝh, gh, $g^{ų}$h	g, gw	g, $g^{ų}$
*q̇	k'- -k-	k- ?	k- ?	ǩ, k, $k^{ų}$	q̇, q̇w	ḳ, $ḳ^{ų}$
*q	Ø- ?	Ø- ?	Ø- ?	H (Ḥ , $H^{ų}$?)	q, qw	ḫ
*g	Ø- -: Ø-	Ø- -:γ-	Ø- -: Ø-	Ḥ (H, $H^{ų}$?)	γ, γw	g

Apparently, the system had four articulatory series (labial, dental, velar, and postvelar); within each series, three phenomes were opposed by the plosure type. The languages discussed reflect this tripartite distinction differently:

1) as the distinction of fortis voiceless - lenis voiceless - voiced (Altaic),

2) as the distinction of geminate voiceless - single voiceless - spirants (Uralic; a similar sstem was probably further simplified in Dravidian),

3) as the distinction of voiceless - voiced - aspirated voiced (Indo-European),

4) as the distinction of glottalized voiceless - non-glottalized voiceless - voiced (Kartvelian, Hamito-Semitic).

The original series is most likely identical to the Kartvelian and Hamito-Semitic type and as such, originally glottalized voiceless, gutturals, non-glottalized voiceless and voiced stops were opposed. Initially, such reflexation is observed in the two proto-languages, reflecting the original stop system in its entirety[87]. Then, if this was the

[87] In addition to that, Uralic and Dravidian only show (partial) similarity in the plosure type. However, the respective system with the plosure distinction neutralized in the non-initial position is apparently secondary.

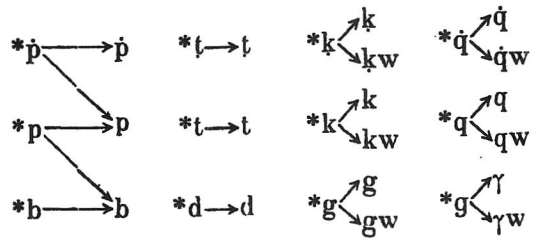
explained. Nonetheless, the direction of change is clear, as a number of tendencies towards less stringent articulation are invariably observed. Thus, the glottalized stops lose the glottal plosure, the ordinary voiceless are produced with a weaker plosure and get voiced, and the voiced are spirantized. If a different system (e.g., a system identical to the Indo-European, Uralic or Altaic) were used as the starting point, a number of arbitrary assumptions would be inevitable in explaining its evolution, particularly in the cases of Kartvelian and Hamito-Semitic.

Thus, the twelve stop system is reconstructed; within this system, labials, dentals, velars and postvelars are distinguished, and each series has a glottalized voiceless, non-glottalized voiceless, and voiced stop. The designations for the protophonemes have been chosen to reflect this state.

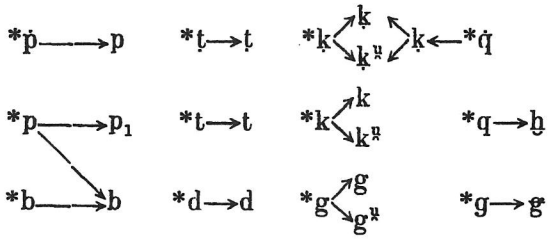
	Labial	Dental	Velar	Postvelar
Voiceless glottalized	ṗ	ṭ	ḳ	q̇
Voiceless nonglottalized	p	t	k	q
Voiced	b	d	g	ɡ

The least stable elements of this system are the two stops polarized by the articulation and series. They represent the system's extremes (glottalized labial *ṗ and voiced postvelar *ɡ). These consonants underwent changes in all the languages under consideration.

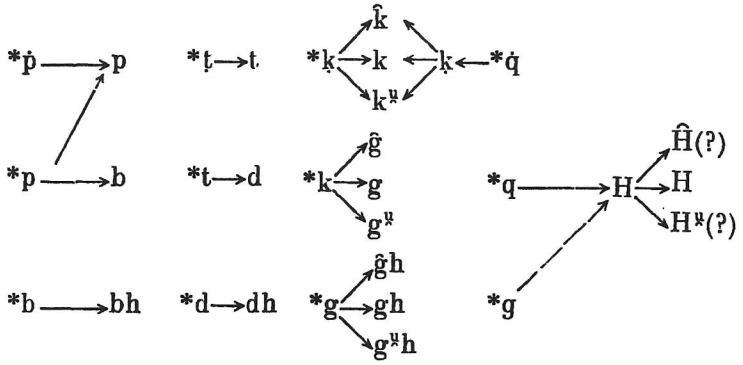
In Kartvelian, the fewest changes from the original systems are observed where three labial stops were retained. Within the labial subsystem, however, certain regrouping takes place, due to the partial developments of *ṗ → p (see above) and *p → b (the latter might be related to the former). Early Kartvelian likely had all of the three postvelars, while later, at the Common Kartvelian stage, *ɡ changed into the spirant F. With the loss of the originally stable vocalic system in Kartvelian, the labialized and non-labialized allophones of the velars and postvelars are established as separate phonemes (the labialized phonemes later developed into biconsonantal clusters with w). See Fig. 1.



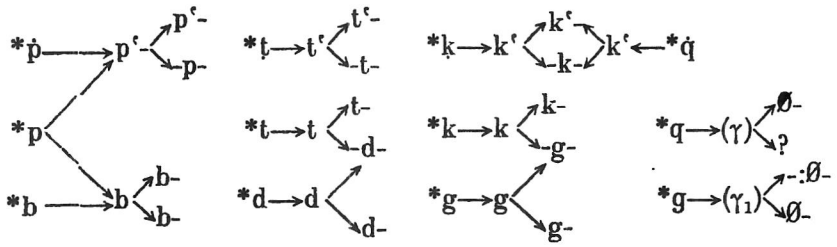
In Hamito-Semitic, the glottalized labial *ṗ lost its glottal plosure, yielding the non-glottalized voiceless *p; as a result, the original voiceless *p underwent articulatory change too, probably developing into the aspirated voiceless p_1 and coalescing with b in a number of instances. In the postvelar series, the voiced *g and the voiceless *q were spirantized into g̱ and ḫ respectively. Meanwhile, the glottalized *q̇ coalesced with the glottalized velar *k̠, yielding k̠ (the latter phonemes seems to have had a more backward articulation than the two other velars, k and g). With the loss of the original vowel system, labialzed and non-labialized velars developed, as in Kartvelian; see Fig. 2.



In Indo-European, the glottalized stops lost the glottal plosure and developed into non-glottalized voiceless. As a result, the original voiced acquired another plosure type which developed into voiced aspirates (their phonetic characteristics remain unclear). In the labial series, the glottalized *ṗ was probably the first to lose the glottal plosure (cf. the Hamito-Semitic situation), which resulted in partial coalescence of *ṗ and *p (the former *p was also partially retained as b). The postvelar *g and *q were spirantized, yielding the laryngeals, while the glottalized *q̇ coalesced with the velar *k̠. The loss of the original vocalic system led to the phonemization of the three velar allophones (palatal, velar proper and labiovelar) and, possibly, of the laryngeals (unlike the situation in Kartvelian and Hamito-Semitic, where the phonemic status was acquired by two series only); cf. Fig. 3.



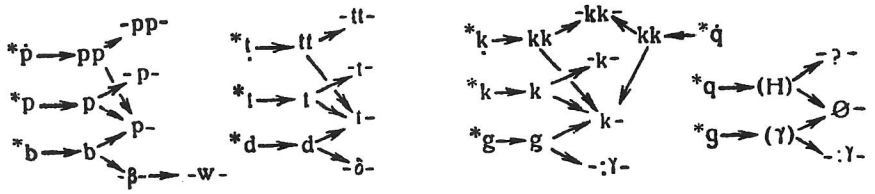
In Altaic, the glottalized stops lost the glottal plosure but retained its side effect (stringent articulation)[88] and thus yielded fortis voiceless. The original voiceless were represented as lenis voiceless, and the voiced were retained. The system of reflexes shown is found in the initial position. Non-initially, the fortis voiceless were weakened, yielding the lenis voiceless, while the original lenis voiceless coalesced with the voiced. Prior to the loss of the other glottalized stops, *ṗ must have developed into p‘ (cf. similar developments in Hamito-Semitic and Indo-European) and as a result, the original *p coalesced in some cases with *ṗ and in other instances with *b. The postvelar *g and *q were spirantized (the respective spirants were then entirely lost in the initial position), and *q̇ coalesced with *ḳ. Since the origianlly stable system of vowels was retained in Altaic, there was not split in the velar series; cf. Fig. 4.



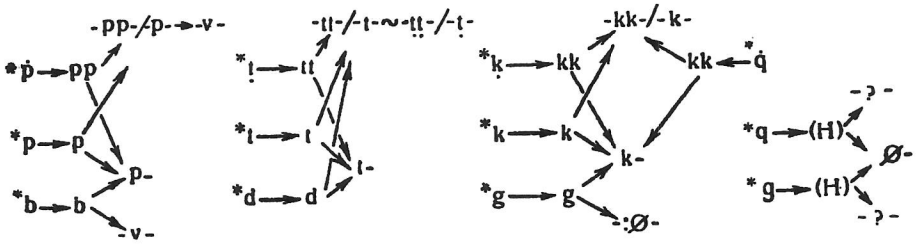
The Uralic glottalized stops lost the pertinent plosure, but retained the discontinuous articulation as its secondary effect (originally this was the interval between the glottal and oral plosure, sequenced in time)[89]. Thus, the geminates arose. Single voiceless and voiced were probably retained initially. In the further development of the system, the position of the stop became a crucial factor. In the initial position, the voiced and geminate voiceless coalesced with the single voiceless, and the voiced were spirantized in the intervocalic non-initial positioning. The postvelar *g and *q were spirantized, and later, lost in the initial position while *q̇ coalesced with *ḳ. As in Altaic, the velar series did not split because it retained the original vowel system; cf. Fig. 5.

[88] Cf. the development of the Hamito-Semitic gutturals into emphatic stops in the Semitic languages (except the Ethiopian grouping).

[89] Cf. E. D. Polivanov, Классификация грузинских согласных, Бюллетень среднеазиатского университета 8 (1925): 114. Disrupted articulation of the guttural and the following vowel has been observed in Semitic languages of Ethiopia, see E. Ullendorf, The Semitic languages of Ethiopia, London, 1955, 153.



For the early Dravidian stage, a system can be reconstructed that is very close to the Proto-Uralic structure. As in Uralic, the glottalized stops changed into the geminates, and the three series distinction was neutralized in the initial position. Further simplification of the Dravidian system may be related to the rise of allophones of the geminates; in the non-initial position, these allopones coalesced with the single stops[90]. By analogy, the respective distribution expanded to the cases where the original stops were single voiceless and as a result, the geminates and the single voiceless coalesced entirely. In the non-initial position, the original voiced stops were retained as autonomous phonemes: the velar *-g- was spirantized (as in Uralic) and later lost, while the labial *-b- coalesced with -v-. All of the categories of stops coalesced only in the dental series (this refers to the non-initial position). Subsequently, however, a cerebral phoneme, -ṭ(ṭ)-, developed. Its rise was probably due to the influence from certain vowels of the second syllable, which were later lost. The development of the postvelars was typical: *g and *q were spirantized (lost the initial position), and *q̇ coalesced with *ḳ; cf. Fig. 6.



A number of the phonetic processes discussed here are common to all of the languages considered. Thus, the postvelar *q̇ uniformly coalesced with the velar *ḳ, and the postvelar *q̇ spirantized in all of the languages, except Kartvelian. In Hamito-Semitic, Kartvelian and Indo-European, which represent the three (western) proto-languages whose original vocalic structure was lost, the velar (and postvelar, if any) series split into two or three series of velars. The resulting phonemes reflect the

[90] Cf. 308.

characteristics of the following original vowel indirectly, i.e. by labialization or palatalization. The glottalized *ṗ was lost early in Hamito-Semitic, Indo-European, and Altaic (in the two latter proto-languages, this stop must have been reduced prior to the loss of the other glottalized stops). To a certain extent, the same situation is found in Kartvelian. In these proto-languages, the binary plosure distinction replaced the origianl ternary distinction either partially or completely (as in Altaic). With the possible exception of the far-reaching Uralic-Dravidian similarities, all the similarities shown above to develop from a similar use of evolutionary possibilites inherent in the original system, rather than from particularly close genetic affinity of the respective languages.

EDITORIAL NOTES

[1+] In one of the author's manuscripts, Kurukh -k- is not shown, neither is it shown in the tables in DED.

[2+] In one of the author's manuscripts, d- -t is given instead of t; g- -k instead of k; kw- -k instead of gw-; kw- -k instead of kw- (the *k^{u} line), and gw- -k instead of kw- (the *g^{u} line).

[3+] Originally, this entry also included a Kartvelian correspondence (*ḳera 'hearth, hearthstone' > Georg. ḳera, Chan ḳira, ḳera). This correspondence was left out from the final version of the paper, for it can be interpreted as a Semitic borrowing (cf. Этимология. 1965, Moscow, 1967: 353, s. v. 'hearth'). Accordingly, this example is irrelevant as far as the distinction of Nostratic *ḳ- and *q̇- is concerned.

[4+] The Dravidian reflex was obtained by V. M. Illič-Svityč on the basis of the following comparison: Alt. *ory 'call' (Evenki ori-, Mong. oril-) ~ Drav. *aṛ 'cry, call' (Tamil aṛu 'cry', aṛai 'call', Kannada aṛu 'cry', Parji aṛ id.; see DED 21) ~ IE *H^{u}er- 'pray, appeal' (Hitt. aruu̯āi 'bow, plead', Hom. Grk. αρή 'prayer', Lat. ōrō 'I pray'; see Pok. 781) ~ Kartv. *Far-/Fr- 'sing, cry' (Chan γor-, Svan γar-/γr-) ~ HS *ǧrj 'speak' (South Ar.: Mehri garôj, Sokotri 'rj; see Leslau Soq. 326-327). The example, probably a descriptive one, was omitted from the final version of the paper.

[5+] In one of the author's manuscripts, Drav. *kapp- 'cover' is obtained from Malayalam kappu and Kurukh khap- (see DED 86-87), HS *kp 'cover' is derived from Ar. kfr 'cover' and OEgypt. k3p 'roof' (see Ember 16).

[6+] In some of the author's manuscripts, Ural. *putʌ 'rectum' is derived from Southern Lapp buttĕgĕ, Xanty pŭti (see Coll. 74), HS *pˡwt is derived from Hbr. pwt 'vulva', Somali futo 'anus', Angus fŭt 'deep hole'.

[7+] In some of the author's manuscripts, Kartv. *tip-/tib- 'mow, hay' is derived from Chan tip- 'mow; grass'/Georg. tib- 'mow', Georg. dial. tiba 'grass, hay' (Cf. Klimov 94), HS *tb- 'cut, straw' is derived from Ar. tbb 'cut', ybn 'straw', Hebr. tḗbḗn 'finely cut straw' (see Ges. 870).

[8+] In some of the author's manuscripts, this etymology also included the Kartvelian root *bir- 'child' (Chan bere 'child, son'; cf. Čik. 19-20).

* * *

The etymologies below were omitted from the final version of the paper, because of the possible descriptive character of the roots and for some other reasons. However, they are of certain etymological interest.

*ṭ: 1.40. Alt. *tʿapʌ 'beat, forge, trample' (Orok tapitči- 'forge', Karachay tapla- 'forge', Tatar tapta- 'trample down, whet'; cf. Vasil 380) ~ Ural. *tappa- 'beat, stamp with foot, trample down' (Finn. tappa- 'kill', Hung. tapod- 'trample', Nenets tapar- 'stamp, kick with foot'; cf. Bárczi 301) ~ Drav. *tapp- 'beat, hit' (Tamil tappai 'blow'; see DED 199) ~ IE *tep- 'beat, trample down' (OIceland. þefja 'ram', OSlav. tepǫ 'I beat'; cf. Pok. 1056) ~ HS *ṭp- 'beat, break, trample down' (Akkad. ṭappu 'foot', Syr. ṭpḥ 'beat with fists', Angas tăp, tĕp 'break'; cf. Ges. 278).

1.41. Alt. *tʿurʌ- 'crane' (Middle Mong. tura'un, Turkish turna, dial. durna, Turkmen durna, OTurk. turuñaja; cf. KW 411) ~ Ural. *tŏrʌkʌ 'crane' (Komi Luza turig, Mansi Pelymka tē̮ruγ, Xanty Vax tarə̑γ; cf. Paasonen OW 260).

1.42. Alt. *tʿokʌ- 'plait, weave' (Mong. toki- 'plait, braid', Azerb. toxu- 'weave', Turkmen doku- id.; see KW 398) ~ IE *tek- 'plait, weave' (Osset. taxun 'weave', Arm. tʿekʿem 'I plait, twist', OHG. tāht 'wick, cord'; see Pok. 1058).

1.43. Kartv. *ṭr- 'contain' (Mingrel, Chan ṭr-, /t.ir-; cf. Klimov 180) ~ HS *'ṭr 'contain, guard against' (Minaean 'ṭr 'guard', Akkad. eṭēru 'contain', Hebr. 'ṭr 'lock'; cf. Ges. 28).

1.44. Drav. *kott- 'cut, dig, hollow'/*koṭṭ 'beat, cut' (Tamil kottu 'dig, peck'/Tamil koṭṭu 'beat'; see DED 140, 141) ~ HS *ḳ^{u}ṭʿ 'cut' (Ar. qṭʿ 'cut', Geez taḳ^{u}āṭʿa 'be sated'; see Leslau Soq. 373).

*t: 2.25. Alt. *talʹy- 'drag, carry' (Turkmen dašy- 'carry, drive', Tuva dažy- 'drag') ~ Kartv. *tar-/ter- 'drag' (Georg. tr-/ter-/tar-, Svan tr-/tir-; see Klimov 95).

*k: 4.20. Drav. *nakk-/nākk- 'lick' (Tamil nakku/Telegu nāku; cf. DED 235) ~ IE *lak- or *lok- 'lap' (Lith. làkti, Russ. лака́ть; cf. Pok. 653) ~ Kartv. *lḳ- 'lick' (Georg. loḳ-, Svan lōḳ-, läḳ-; cf. Klimov 121-122) ~ HS *lḳḳ- 'lick' (Ar., Hebr. lqq; cf. Cohen 183).

*k: 5.25. Alt. *karʌ- 'gray crane' (Evenki karaw; Mong. qargir; cf. Sauv. 90) ~ Ural. *karke 'crane' (Lapp guor'gâ, Mordvin kargo, Selkup kara; cf. Coll. 29) ~ IE *gerH- 'crane' (Grk. γέρανος; cf. Pok. 383) ~ HS *krk 'crane' (Ar. kurkij, Akkad. karakku, kurukku; cf. Grimme ZDMG 55, 447).

5.26. Alt. *kömʌ- 'overturn' (Udyhe kùmtä-, Mong. kömür; see KW 239) ~ Ural. *kumʌ- 'overturn' (Finn. kumoa; see Coll. 27-28).

*g: 6.27. Alt. *gyl′ 'cold' (Evenki gilli 'cold (of water)', Turkmen gyš 'winter') ~ Kartv. *gr- 'cold' (Georg. gril 'cool').

6.28. Drav. *kōḷ- 'woe, sadness' (Kota go·ḷ- 'sadness', Tuluva gōḷu 'woe'; see DED 149) ~ Kartv. *glw- 'grieve, mourn' (Georg. glow-, Mingrel rg(w)-; cf. Klimov 63).

*q: 7.10. Alt. *k'ōr(ʌ) 'blind' (Turkmen kōr) ~ Drav. *kur- 'blind' (Tamil kuruṭaṉ 'blind man', Tuluva kuruḍa 'blind'; see DED 121) ~ Kartv. *q̇wer- 'blind' (Mingrel 'were).

*q: 8.9. Alt. *sigä- 'urinare' (Mong. sige-, Turkish si/ğ-; see KW 355) ~ IE *seiH- 'moist, drip' (Middle Ir. silid 'drips, flows', OHG. seim 'treacle', Lith. séilė 'saliva'; see Pok. 889) ~ HS *śḫ(ḫ) 'urinare' (Ar. šḫḫ, Sokotri śḥḥ-, Agau Bilin šag; cf. Cohen 110).

*p: 10.37. Alt. *p'ār′(ʌ) or *p'ar(ʌ) 'soar' (Evenki hār-, haril-) ~ Drav. *pāṟ- 'fly, jump, run' (Malayalam pāṟu- 'fly', Kannada p pāṟ- 'jump, run fly'; see DED 270) ~ IE *(s)per- 'fly' (Avest. parəna 'wing', Russ.-OChSlav. perǫ 'I am flying', Lith. spar̃nas 'wing'; cf. Pok. 816-817, 991) ~ Kartv. *ṗer-/pr- 'fly' (Svan ṗer-/Georg. prin-, pren-, Mingrel purin-; cf. Klimov 152-153, 190) ~ HS *pr- 'fly, jump, run' (Aram. prḥ 'fly', OEgypt. p3 'fly, flee', Angas pīr 'unfold wings'; cf. Greenberg Word 14, 300; Cohen 168-169).

10.38. Alt. *p'us(ʌ)- 'blow in' (Evenki hus-) ~ Ural. *pušʌ- 'blow' (Lapp bosso-, Komi pušky-; see Coll. 51) ~ IE *pŭs- 'blow, be blown up' (OInd. púṣyati 'blooms, grows', OSlav. puxlъ 'plump'; cf. Pok. 848).

10.39. Alt. *p'üsʌ- 'sprinkle' (Manchu fusu- 'sprinkle', Mong. üsür- id., Mongor fuʒuru- 'pour'; see Poppe 11) ~ Ural. *pusʌ- or *pušʌ- 'splash, spit' (Mansi pot- 'splash', Xanty Vax pŏl- 'spit', Selkup puttu 'saliva'; cf. Coll. 51).

10.40. Alt. *pʻoka 'bubble' (Olča poko 'small bubble; crop (of hazel grouse)', Nanai poka 'bubble, callosity', Manchu fuka 'bubble') ~ Drav. *pokk- 'bubble' (Tamil pukku 'scum, get covered with bubbles', Telegu pokku 'bubble, get covered with bubbles'; see DED 295).

10.41. Alt. *kʻap*(ʌ)- or *kap(ʌ)- 'seize, bite' (Turkish kap- 'seize, bite', Turkmen gap- 'bite') ~ Ural. *kappʌ 'seize' (Mordvin Erzja kapode- 'seize') ~ Drav. *kapp-/kavʌ- 'seize, swallow greedily' (Tamil kavar 'seize', Malayalam kappu 'snatch, swallow greedily', Kui kappa 'swallow greedily'; cf. DED 94, 87) ~ IE *kap- 'seize, take (Lat. capiō, Latv. kā̀pt; see Pok. 527-528).

10.42. Alt. *čap- 'chop, beat' (Mong. čabči- 'fell (a tree)' < *čap-, Uighur čap- 'beat, hit'; cf. KW 437) ~ Ural. *ćappʌ- 'chop, beat' (Veps. ćappa 'beat, thrash', Lapp čuopʲpâ- 'cut, chop', Hung. csap- 'beat, chop'; see Wichmann FUF 11, Anzeiger 188-189) ~ IE *skep- 'feel, chop off' (Grk. σχέπαρνος 'axe for lopping off', OSlav. skopiti 'emasculate'; see Pok. 931-932) ~ HS *sp- 'beat, hit' (Ar. sfq 'hit noisily', Hebr. spq 'hit one's sides', Aram. spd 'hit one's chest'; see Ges. 550).

*p: 11.15. Alt. *pʻak- or *pʻag- 'burst, wrinkle, shrink' (Manchu fakča- 'burstʻ, Middle Mong. hag- 'wrinkle'; see Poppe Lg. 30, 572) ~ Ural. *pakkʌ- 'burst' (Finn. pakku- 'burst, *pakk-/pakʌ- 'burst, break (vi)' Tamil pakku 'fragment', paku 'burst', Telegu pagulu 'burst, break'; see DED 257) ~ HS *pḳ/bḳ- 'burst, split' (Ar. fqʿ 'burst', Agau bilin faḳ 'pierce'/Hebr. bqʿ, bqq 'split', Berber Sus əbugu 'pierce'; cf. Ges. 111, 656; Cohen 170).

11.16. Ural. *pačka- 'pedere' (Lapp buocke-, Udmurt pyčkiśk-; see Setälä FUF 2, 231) ~ IE *pezd-/b(h)ezd- 'pedere' (Lat. pēdō, Sloven pezdẹ́ti/Lith. bezdėtī cf. Pok. 829) ~ HS *pṣṣ-/bṣṣ- 'perdere' (Tuareg feẓẓ-/Ar. bṣṣ-, Saho basas; see Cohen 170).

11.17. Alt. *tʻupy- 'spit' (Nanai topiči, Oroč tupinai-) ~ Drav. *tupp- 'spitʻ (Tamil tuppu, Kurukh tupp-; cf. DED 217) ~ IE *pt(i̯)eu̯- (metathesis of *tp(i̯)eu̯-; cf. Luv. tapp- 'spit') 'spit' (Grk. πτυω, OInd. st-hīvati; cf. Pok. 999-1000) ~ Kartv. *ṭb(w) 'spit' (Svan ṭb- 'spit', na-ṭibw 'spittle') ~ HS *t(w)p$_1$ 'spit' (Ar. tff, Hebr. twp, OEgypt. tf, Beja tūf; cf. Cohen 151).

11.18. IE *serb-/serbh- 'gulp, drink' (Middle High Germ. sürpfeln 'gulp'/Arm. arbi 'I drank', Grk. ροφέω 'I gulp'; cf. Pok. 1001) ~ HS *śrp/śrb 'gulp, drink' (Aram. Syr. səraf 'gulp'/Ar. šrb 'drink'; cf. Grimme ZDMG 68, 261).

*b: 12.29. Alt. *boŋʌ 'fat, big' (Solon boŋo^n 'fat, big', Nanai boŋgo 'fist, chief'; see Cinc. 241) ~ Drav. poṅk- 'swell, increase, large' (Tamil poṅku 'swell, be puffed up,

boil up', Tuluva boṅka 'large', Malto pongje 'increase'; see DED 295-296) ~ IE *bhenĝh- 'thick, bump' (OInd. bahús 'thick', OHG. bungo 'lump, bump'; see Pok. 127-128).

12.30. Drav. *piḷ- 'cry, make noise, call' (Tamil piḷiṟu 'roar (of elephant)', Telegu pilucu 'call', Kui pṛī 'howl'; see DED 279) ~ IE *bhel- 'roar, speak' (OIceland. belja 'roar', Lith. bìlti 'start speaking'; see Pok. 123-124) ~ Kartv. *b(i)r- 'sing' (Chan bir-; Svan br-; see Klimov 53).

12.31. Ural. *pora- 'bubble over, boil' (Mordvin pura-, Hung. forr-) ~ IE *bheru̯- 'seethe, bubble over, boil' (Lat. ferveō 'I boil, seethe'; see Pok. 143-145).

MOTHER TONGUE
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From Illich-Svitych's Nostratic Dictionary[1] (b-d)

V.M Illich-Svitych
Translated by Mark Kaiser

1. ? baHli ' wound, pain': I-E *b^{h}eĥl-* 'wound, pain' ~ Alt. [*bāli* 'wound'].

I-E: Alb. (Gheg) *bolbë* 'accident' (< **bēl-bë*, see Vasmer Alb. 8) ‖ Goth. *balwjan* 'to torment'; OIcl. *bǫl* 'misfortune, harm'; OHG *balo* 'vice, evil' (< **balwa-*) ‖ OCS *boléti*, Rus. *bolét'* 'to hurt', *bol'* 'pain' ‖ Tokharian A *päl*, B *pīle* m. 'wound' (TSpr, 141) ‖ Cf. Vas. 1, 105; Sław. 40; Feist 79. Albanian and probably Tokharian forms derive from **b^{h}eĥl-*, Germanic and Slavic from the zero-grade **b^{h}əl-*.

Alt.: Turkic **bāl'* 'wound;: Karagas *bajś*, Yakut *bās*, OUighur (Kashghari) *bāš*, Turkmen, Turkish (Western Anatolia) *bāš*; Turkic **bāl-yγ* initially an adjective in *–yγ/-iγ* (cf. OUighur (Kashghari) *balyγ* 'wounded'), usually with secondary meaning 'wound': Tuva *balyg*, Khakas (Kojbal) *bālyx, (Kachin, Kyzyl) pālyγ*, Shor *palyγ*, Altay (north.) *palyγ*, (south.) *balū*; cf. Biishev 36; Menges CAJ 1, 127. In Turkic, apparently, **l* is original, and **l'* (> *š*) is the result of palatalization due to the lost final *–i* (**bāli-* > **bāl'*).

♦ The reconstruction of **H* is corroborated by length in Turkic. The palatal character of **ĥ* in IE is conditioned by the vowel **i* of the second syllable. The reconstruction is problematic due to the isolation of the Turkic forms in Altaic.

2. baHʌ 'to tie to': Kart. *b-* 'to ti to, to hang' ~ Alt. *bā-* 'to tie to'.

Krt.: 'to tie to, to hang': Georgian *b-* (pres. *b-am-/b-m-*) ‖ Chan, Megrel *b-* (pres. *bum-* < **b-ɲ*) ‖ Svan *b-* (pres. *b-em-*) ‖ See Klimov 47-48; Chik. 250. The meaning 'to hang' is secondary (← 'to tie to something').

Alt.: Turkic **bā-* 'to tie to': OTurkic, OUighur (Kashghari) *ba-* (OUighur refl. *ba-n-* 'to gird oneself, be girdled'). Yakut *bāj-*; derivative noun **bā-γ* 'sheaf' (Turkic> WrMong. *bag*): Yakut *bya*, Turkmen *bāγ*, Turkish *bağ* ‖ ? Tungus: Evenki (Podkamennaya Tunguska) *ba-* 'to arrange a marriage' (← 'to tie in marriage' ?); the shortening of vowel probably is

[1] V.M Illich-Svitych. *Opyt sravneniia nostraticheskix iazykov (semitoxamitskii, kartvel'skii, indoevropeiskii, ural'skii, dravidiiiskii, altaiskii). Vvedenie. Sravnitel'nyi slovar' (b-K)*. Moscow; Nauka. 1971. [An Experiment in Comparison of the Nostratic Languages (Semito-Hamitic, Kartvelian, Indo-European, Uralic, Dravidian, Altaic). Introduction. Comparative Dictionary (b-K).

similar to Tungus **ga-* < **gaH*$_4$, see #77 below ‖ Korean *pa, paŋ* 'string' ‖ Cf. Ramstedt SKE 179; Ramstedt 57.

♦ **H*, reconstructable on the basis of length in Altaic, was lost in Kartvelian, which would indicate an original **ʔ, *ʕ,* or **h*.

3. baḲa 'to look': S-H. *bq-* 'to look' ~ Alt. *baka-* 'to look'.

S-H.: Semitic **bq- (bqr, bqt, bqw)*: Arabic *bqr* (impf. *–bpur*) 'to follow, to inspect', Syriac *bqr* 'to investigate thoroughly', Ugaritic *bqr* (intens.) 'to comprehend', OHeb. *biqqēr* (intens.) 'to study thoroughly, to scrutinize', Akkad. *bqr* (also *pqr*) 'to make complaint'; Ugaritic *bqṯ*, Pheonician *bqš*, OHeb. *biqqēš* (intens.) 'to look for'; Arab. *bqw* (according to lexicographers' data, also *bqj*) 'to look, observe' ‖ Berber: Kabyle *əbġu* (aorist *–bġa*) 'to desire' (probably, ← 'to look for' ← 'to look') ‖ Cushitic: East Cushitic: Somali *bāq* 'sign' (*bēq* 'attempt'), Gallla *bēk* 'to know'; West Cushitic 'to see': Ometo (Badditu, Zala, Gofa, Uolamo) *be'-*, (Kharuro) *bāj-, bēj-,* Janjero *bi'-*, Gimirra *bēk-*, Kafa (west) *be'-/beqq-*, Mocha *bâqq-*, Mao (south.) *beq-*, Shinasha *beq-*. Cushitic **bq-* 'to see' → 'to know' ‖ Chadic: Hausa *bīk'ì* 'attention, care' ‖ Cf. Dolgopolsky ASb. 57; Aistl. 57-58; Ges. 112; Cerulli St. 3, 70; Cerulli St. 4, 413; Conti Rossini RANL 12, 642. Original meaning was 'to look'.

Alt: Turkic **bak(a)-* 'to look' (and further, 'to look after'): OUighur (Kashghari) *bak-* (aorist *baker* < **baka-*), Chagatai *bak-* (aorist *baker*, converb. *baka*); OKypchak (Cum.) aorist *bagar*; Turkmen *bak-*, Azerbijani *bax-*, Turkish *bak-*; Chuvash *păx-* ‖ Tungus **baka-* 'to find': Ju-chen, Manchu *baxa-* ('to find, to understand'), Nanai *ba-*, Ulcha *bā*, Oroch *ba-gi-*, Udine *b'a-*, Orok *ba-*, Negidal, Solon *baxa-*, Evenki *baka-*, Even *bak-* ‖ Cf. Ramstedt SKE 184; Egor. 150-151; Tsints. 294; Vasil. 48. In Tungus, the result of semantic evolution was 'to look' → 'to pick out visually', 'to scrutinize'> 'to find'.

♦ Cf. Dolgopolsky ASb 57. The reconstruction of either *-ḳ-* or *-q-* is possible (in view of the absence of Kartvelian data).

4. balʔ/u/ 'to swallow': S-H. *blʿ* 'to swallow' ~ Alt. *balgu-/bilga-* 'to swallow, throat'.

S-H.: Arab. *blʿ* (impf. *-blaʾ*) 'to swallow', Geez *blʿ* 'to eat', OHeb., Aramaic *blʿ* 'to swallow' ‖ OEgypt. *b ʿn.t* (with metathesis) 'bird's neck' ‖ Cushitic: Beja *bala* 'throat, gullet', Chara (West Cushitic) *borkā* 'neck' ‖ Cr. Cohen 176; Ember 33, 45; Calice 144; Ges. 101; Leslau har. 41; Dolgopolsky ASb. 54. Semantic development: 'to swallow' → 'gullet' → 'neck'.

Alt.: WrMongolian *balgu-* 'to swallow'; Buryat *balga* 'a swallow', Kalmyk *balgă-* 'to swallow' ‖ Tungus **bilga*: Manchu **bilxa* 'windpipe'; Nanai *belga* 'esophagus'; Ulcha *bilǯa*, Orok *bilda*, Oroch *bigga*, Negidal *belga*, Evenki *belga*, Even *belga* 'throat, gullet' ‖ Cf. Ramstedt KW 31; Tsints. 297; Vasil. 54. The variant with *–i-* vocalism (Tungus) is probably secondary and results from the change of the stem's auslaut, cf. Altaic **siba* < **sawe* (see Part II). [Ed. note: Illich-Svitych later changed the reconstruction of this form, assuming *siwa* as primary and Uralic *śawe* as secondary, cf. #228 below]

♦ Cf. Dolg. 12. Original **-ʔ-* regularly gave Altaic **-g-*.

5. balqa 'to flash': S-H. *brq* 'to flash, lightning' ~ Kart. *berçq-* 'to flash, to sparkle' ~ I-E b^helg- / b^hleg- 'to flash, to sparkle' ~ Alt. [*balkΛ-* 'to shine, to sparkle'].

S-H.: Semitic **brq* 'to flash (of lightning)': *brq* in all Semitic languages (Arab. impf. *–bruq/-braq*, Akkad. pret. *–briq*); 'lightning': Arab. *barq*, OSouthArab. *brq*, Shakhri/Mekhri *barq*, Tigre *bärəq,* Tigrinya b*ärqi*, Syriac *barqō*, Ugaritic *brq*, OHebr. *bārāq*, Akkad. *berqu* ‖ OEqypt. *bʒq* (<**brq*) 'to be bright' (LateEgypt. *brq* <Semitic, see Ward JAOS 80, 323) ‖ Cushitic **m-brq* 'lightning' (with prefix *m-*; Geez, Amharic *mä-bräq*, probably formed under the influence of Cushitic model): Bilin *mirkā* (*mark* 'to flash'), Khamir *mirqā*, Kemant *mark*, Kuara *merk*; Kabenna, Kambata *banqu*-ta, Hadiyya, Sidamo *banqo* (< **m-barq-* with metathesis of nasal; Sidamo *bäläqo* 'lightning', Mocha *pariqq(i)-* 'to flash' (and similar) < Semitic, see Leslau Moča 46) ‖ Chadic: ? Hausa *wálk·íjā̃* (from prefixal **w-brq* ?) f. 'lightning'; Buduma *bàmél*, (Talbot) *baramil* 'thunder, lightning' (compound words); Musgu *bara* 'to flash', *abera* 'thunder, lightning' ‖ Cf. Behnk ZDMG 7, 139; Ember 98; Greenb. 59; Conti Rossini Kem. 231; Bergstr. 185; Aistl. 59-60; Leslau Soq. 97; Leslau Har. 46; Moreno Sid. 207. In Semito-Hamitic we find *–r-* in place of the expected **-l-* (**blq*), possibly under the influence of **br* 'to shine' (Semitic **brr*, **brḫ*, **brṣ*, see Soden AW 106).

Krt. **berçq-/brçq-*: Georg. *brçq-in-* 'to sparkle, to flash', OGeorg. *na-berçq-al-* 'to spark' ‖ Megrel *rçḳ-in-* 'to sparkle' ‖ See Kl. 50, Schmidt St. 99. In Kartvelian it is possible to assume a secondary epenthesis *-ç-*, which transformed the rare combination **-rq-* into a more typical group with the harmonic complex - *-çq-*.

I-E.: OI. *bhárgas-* n. 'blinding brilliance', *Bhṛ́gavas* pl. 'mythical priests of lightning' ‖ Grk. *ϕλέγω* (< b^hleg-, "stem II") 'I burn, I scorch' ‖ Lat. *fulg-* (< **b^h̥lg-*) 'to flash, to sparkle', *fulgus* (gen. *fulgeris*; more frequently the secondary formation *fulgur*) n. 'lightning' ‖ OHG. *blechazzan*, MHG. *blacken* 'to flash' ‖ OLith. *blinginti* (with infix) 'to sparkle' (contrary to Fraenk. 48) ‖ Tokharian AB *pälk-* 'to be on fire, to shine' ‖ Cf. Pok. 124-125. I-E **b^helg-/b^hleg-* is hardly related to the stem, represented in OI. **bhālam*

'brilliance', Latv. *bãls* 'pale' (contrary to Pok.): these forms come from **b^{h}eh-l-*, derived from **b^{h}eh-* 'to sparkle' (see Vas. 1, 73).

Alt. Turkic **blaky-*: Altay (Teleut) *malkyl* (*m-* in place of *b-*) 'bright, shining'; Kazakh, Tatar, Karaim, OKypchak (Cum.) *balky-* 'to shine'; OOguz (Qiş.) OTurkish *balky-* 'to sparkle' (Zajączkowski Kor. 79), Turkish (Edirne, see Echmann ASAL 49) *balkyz* 'lightning' ‖ ? Korean *pąlg-* 'to be bright, clear' (**palg-* would be expected) ‖ Cf. Ramstedt SKE 186, Radl. 4, 1499.

?Url: Of interest is Khanty (north.) *payăl* 'lightning' (noted only in Pápai-Beke 57), possible reflecting Uralic **palkΛ*.

♦ Cf. Tromb. 401 (S-H ~ Krt.). On the basis of I-E and Altaic data it is possible to reconstruct original **-l-*, which regularly was reflected as **-r-* in clusters in Kartvelian, and in Semito-Hamitic was replaced by analogy. In I-E, a structure with voiced aspirate and a tenuis is transformed as usual: **b^{h}elk-* > **b^{h}elg-*. Judging by I-E velar **-g-*, the stem originally ended in **a*; Turkic **-y-*, therefore, is probably secondary. According to the indications of a majority of the languages, the original semantics described a brief flash of intense light (lightning, spark).

6. ? balʌ 'blind': S-H. *bll* 'blind' ~ Alt. *balʌ* 'blind'.

S-H: Egyptian: Coptic (Bokheir) *belle*, (Said) *bəlle* 'blind' ‖ East Cushitic 'blind': Galla *bälla*, Sidamo *ball-ičča, baľ-ičča*, Darasa, Burji *balla'a* (Cushitic > Semitic: Harari *bälla*, East Gurage *balla*) ‖ See Leslau JNES 21, 47; Leslau Har. 41; Moreno Sid. 207; Moreno RStO, 380.

Alt: Mong. **bal-ai-*: Middle Mong., WrMong. *balai soqor* 'blind' (*soqor* 'blind'), WrMong. *balai* 'dark, unknowing', *balai-ra-* 'to go blind'; Dagur *baliē*, Khalkha *balăē*, Buryat, Kalmyk *balā* 'blind' (Mong. > Yakut *balai*) ‖ Tungus 'blind': Manchu *balu*, Nanai *bali*, Ulcha *bāli* (possibly with metathesis of length < **balī*), Oroch, Udihe, Orok, Negidal bali, Evenki *balī*, Even *balīkač* ‖ Cf. Ramstedt SKE 145; Ligeti AOH 14, 18; Tsints. 296, Vasil. 49.

♦ Cf. Dolgopolsky ASb 57-58. The entry raises doubts due to the rarity of the Semito-Hamitic forms.

7. bara 'big, good': I-E *b^{h}er-* 'good, big' ~ Ural. *para* 'good' ~ Drav. [*par-* 'big'] ~ Alt. [*bara* 'many/much'].

I-E: Armen. *bari, barvok* (*ar* < **r̥*) 'good' ‖ Grk. (Homer.) *øέρ-ιστ-oς* (superl.) 'best' ‖ Alb. *mbarë* 'good, happy' ‖ Lat. *ferē, fermē* (< **ferĭmē*, superl.) 'almost, for the most part' ‖ OHG. *bor-, bora-* (*or* < **r̥*) 'very' (pref., cf. *bora-lang* 'very long'); OSaxon *bar* 'very' (*bar-wirdig* 'highly worthy') ‖ Cf. Pedersen KZ 38, 204; Muller Altit. 177. Usually these forms are considered to be derived from **b^{h}er-* 'to carry, to take' (← 'productive, fruit-bearing' cf. Bois. 1021; Pok. 128-131) or from **b^{h}er-* 'edge, raised place' (Persson Beitr. 1, 49); in light of the external comparisons the derivation 'big' → 'good' (cf. Germanic, Latin) is more likely.

Url: Finn. *paras* (superl.) 'best', *parempi* (comp.) 'better' (forms from a lost **para* 'good') ‖ Saami (north.) *buore-* 'good') ‖ Mordvin (Moksha) *parǎ*, (Erzya) *paro* 'good' (adj., n.) ‖ Mari (west.) *purə̑*, (east.) *poro* 'good, healthy' ‖ Udmurt *bur* 'right', Komi *bur* 'good' ‖ See SKES 490-491; Lytkin 205; Itkonen LChr. 85.

Drv: South Drav.: Tamil *paru* 'to become big, to swell', *paruppu* 'thickness, magnitude'; Malayalam *paru* 'big, voluminous; abscess' (← 'swelling'); Tulu *parija* 'very much'. See DED 267.

Alt: ? WrMong. *bar-da-gan*, Khalkha *bardān* 'abundance, abundant' ‖ Tungus **bara(n)* 'many, much': Manchu *baran* ('numerous'), Orok *bara*, Solon *bara*, Evenki *baran* (cf. *bara-l-* 'to increase'). See Vasil. 50.

♦ The archaic meaning 'big' is preserved in Dravidian, Altaic, and partly in Indo-European. In Uralic and Indo-European subsequent semantic development was in the direction 'good' (as, for example, Serbo-Croation *böljī* 'better' ← 'bigger').

8. bari 'to take': S-H. *br-* 'to grab, to catch' ~ I-E *b^{h}er-* 'to take, bring, carry' ~ ? Drav. *per-* 'to pick up, gather' ~ Alt. *ari-* 'to take into one's hands'.

S-H.: Semitic: Akkad. (Babylonian) *b'r* (pret. *–bār*) 'to catch', *bā'iru* 'fisherman', probably a secondary development from original **br*, cf. Mekhri, Shakri *btr* (< **t-br*) 'to fish' (the __ in Soqotri *b'r* 'to fish' is probably secondary; cf. Leslau JLOS 82, 2) ‖ Berber: Tuareg *aber* (pret. *–uber*) 'to seize by the handful'; *-b-* < **-bb-* < **w=b=*, cf. Tuareg *e-häre* 'goods, property, cattle' without prefixal , which caused germination and preservation of *–b-* (in *e-häre, h* < **-b-* with weakening, as in those cases described by Beguinot RANL 33, 186-199) ‖ Cushitic **brj*: Beja *bari* 'to get, gather, have control'; Saho (Irob, see Plazikowski-Wagner ZDMG 103, 381) *bar-* 'to seize, hold', Afar (Tajurah, see Lucas JSAfr 5, 198) *ber-* 'to carry away' ‖ Chadic: Ngala (Kotoko group) *birre* 'to seize' ‖ Cf. Rössler Oriens 17, 215.

I-E: OI. *bhárati*, Avestan *baraiti* 'he carries'; OI. *bháras* 'catch' ‖ Arm. *berem* 'I carry, bring' ‖ Phrygian *αβ-βερετ* 'he brings' ‖ Grk. *øέρω* 'I carry (Mycenean 3rd ps. sg. *pe-re*,

cf. Morpurgo 240) ‖ Alb. *bie* (< **b^{h}erō*, cf. imperative *biere*) 'I carry, bring' ‖ Lat., Oscan *fer-* 'to carry' ‖ OIr. *biru* 'I carry' ‖ Goth. *baíran* 'to carry, bring' ‖ OCS *berq* (inf. *bьrati*) 'I take' ‖ Toch. AB *pär-* 'to bring, carry' ‖ Cf. Pok. 128-132 (Pokorny's formations with the meaning 'to give birth to, descendants' represent an originally different root – see #32 below). In light of external comparisons, the meaning 'take' in Slavic, usually considered an innovation, is revealed to be archaic. From this meaning the semantics present in I-E 'bring' → 'carry' most likely developed.

?Drv: 'to pick up; to gather': SouthDrav. **peṛukk-*: Tamil, Malayalam *peṛukku*, Toda *peṛk-*, Kodagu *porïk-* ‖ Telugu *peǯipi, peǯǯu* ‖ Cent.Drav.: Kolami *petk-*, Naiki *pett-*, Parji *ped-*, Gadaba (Salur) *piǯ-*, Gondi (Adilabad) *per-*, Konda *peṛ-*, Kui *pebg-* (< **peg-b-)* ‖ Kurux *pes-* ‖ Cf. DED 393.

Alt: Turkic **bary-*: OTurkic., OUigur *barym* 'property'; Azerbaijan *baryn-*, (Gazakh) *barym-* 'to derive profit, obtain advantage'; OTurkish (TS 2, 104) *baryn-* 'to obtain for oneself the means for existence', Turkish (Edirne) *bary-* 'to worry, to guard'; MHung. *barom*, OHung. *barum* 'cattle' (← 'property'), borrowed from OBulgar (Gombocz BTL 40-41) ‖ Mong. 'to take with the hands, to seize' (and later 'to present to'): MidMong., WrMong., Ordos, Khalkha *bari-*, Dagur *bäri*, Baoan *vār-*, Kalmyk *bär ´-*; Mogol *bari-*; See Poppe Mong. 26; Zirni 89 ‖ Cf. Ramstedt KW 38 (where, as in Ram. 56, there is the assumption of relationship between the Mongolian words and Turkic **barŋak* 'finger'). The semantic development in the Turkic languages was 'to take' → 'to obtain (property)'.

♦ Cf. Ramstedt JSFOu 53, 23; Dolgopolsky 12 (I-E ~ Alt.). The original meaning 'to take' is preserved in Altaic, Dravidian, and partly in I-E. In Dravidian we apparently see the umlautization of **a* > *e* in the first syllable, influenced by the loss of the front vowel of the second syllable in position after *ṛ* (as in Drav. **ēṛ-* 'to rise' < **Horä* #116, see below).

9. berg/i/ 'high': S-H. *brg* 'high' ~ ? Kart. *bṛg-e* 'high' ~ I-E *b^{h}erĝ^h-/b^{h}reĝ^h-* 'high' ~ Ural. [*p/e/r/-kΛ/* 'high'] ~ ? Drav. *pēṛ* 'high'.

S-H.: Berber: Tuareg *burg'ət* (aor., pret. *–bburg'ət*) 'to raise oneself' (points to **w-brg*) ‖ Cushitic: Beja (Almkvist) *birga* 'high', Galla (Tusehek) *borgi* 'hill, mountain' ‖ Chadic: Jegu *bùlgît* m. 'high'.

?Krt: Georg. *brge* 'tall' (formed with suffix *–e*). Gam. –Mach. 99 assume a link with Svan *bəgi* 'hard'.

I-E: OI. *bṛh-ánt-* 'big, high', Avestan *bərəz-ant-* 'high' ‖ Arm. *barjr* 'high' ‖ Hittite *parkuš* 'high' ‖ OLat. *forctus* 'strong' (< $*b^hr̥ĝ^h$*-to-*) ‖ Middle Irish *brí* (acc. *brig*) 'hill', Welsh *bry* 'high' ‖ OIceland. *bjarg*, OHG. *berg* 'mountain'; OI. *brego* ("stem II" $*b^hreĝ^h$) 'lord' ‖ Tokharian AB *park-* 'to rise' ‖ I-E forms showing reflexes of the I-E velar instead of the expected palatal are unclear: Alb. *Burg* (in mountain names, see Jokl, ZONF 10, 183-186), Slavic **berĝˇb* 'bank, hill' (OCS , SerboCroatian *brêg*, etc.); it is possible that they are borrowings from "centum" languages. See Pok. 140-141; Vas. I, 76.

Url: Samoyedic **pīr* (and derivatives) 'high': ennets *pīrća* (*pīr* 'height'), Enets (Khantaika) *fid'e*, (Baikha) *fize*, Nganasan *fira*, *firaga*, Selkup (Taz) *pergä* (*pīre* 'height'), Kamas *pürže* Kojbal *priće*, Motor *hirge*, Taigi *hürke*; see Lehtisalo MSFOu 56, 84, Castrén Sam. 236. The Samoyedic form may reflect Uralic **perkΛ* or **pirkΛ*.

?Drv: South Dravidian: Kota *pēr* 'steep slope', Toda *pēṛ* 'crag' ‖ See DED 294. Apparently Kuvi *pēṛh-* 'to raise' (← 'high') also belongs here; less likely is a connection with **pēṛ* 'to load; a heap', as suggested in DED 294.

♦ Cf. Trom. 399 (Cushitic ~ I-E ~ Uralic); Vogt NTS 9, 337 (Kartv. ~ I-E). The vowel **e* in the first syllable is reconstructible on the basis of Drav. data (cf. also Uralic). Length of **ē* in Drav. is probably due to the simplification of the cluster **-rk-*. I-E palatal $*ĝ^h$ points to a front vowel in final position.

10. ? be/rH/u 'to give': S-H. [*br/H/* 'to give'] ~ Alt. [*bērü-* 'to give'].

S-H.: Chadic **br* 'to give'; Western: Karekare *baretu*, *bɛrt*, Ngamo *bari'* ('give!'); Ngizim *bar-*; Gabin *fur-*, *vur-*; Eastern: Jegu *bir*, Mubi *bár-*. Cf. Pilszczikowa RO 22, 83 ‖ Possibly the rare Arab. (Maghreb, see Dozy 1, 6b) *br'* 'to hand over, give over, give up' also belongs here.

Alt: Tukic **bēr(ü)-* 'to give': OTurkic *ber-*; Tuva (Castrén) *bir-*, (contemp.) *bār-*, Yakut *biär-*; OUighur *ber-* (< **berü-*, cf. aor. *berür/berir*, converb. *berü*), Uighur (south.) *ber-/ver-*, Sary-Yugr *ver-*; Tatar (Gorky Mishar) *bār-*, OKypchak (Cum.) *ber-* (aor. *berür*, converb. *berü*, more rarely *berir*, *beri*); OOguz (Ibn-Muhanna) *ver-* (**e*), Turkmen *ber-* (with secondary shortening of the vowel before *r*), Azerbaijani *ver-* (**e*), Afshar *vēr-*, Turkish (southwest.) *vēr-*; Chuvash *par-* (cf. Hung. **bēr* 'payment, price' (OHung. *bér*, Veszprem dial. *bír*), a borrowing from OBulgar **bēr*; the original meaning was probably 'tribute'). Cf. Räsänen Laut. 68; Gomboca BTL 43-4; Biishev 36; Egor. 143.

?Krt: Note Georg. *bar-* 'to entrust, charge; to invite' (Svan *ad-bar-* 'to give back' < Georg. ?).

♦ Length in Altaic (Turkic) points to **H* in the root. Nor is such a reconstruction contradicted by the Chadic data, where in Semito-Hamitic **H* is regularly lost. The comparison is problematic in view of the isolation of the Chadic and Turkic forms within Semito-Hamitic and Altaic, respectively.

11. (Descriptive) biĆa 'small': Ural. [*piĆʌ* 'small'] ~ Drav. *pīc-/picc-* 'small, short' ~ Alt. *biča* 'small'.

Url: Karelian *pićukkaini* 'tiny', Vepsian (south.) *piču* 'small', Estonian *pisikene*, *pisune* 'small'; with suffix *–k-*; Finn. *pisku*, Vepsian *pisk* 'small'. Cf. SKES 578. In medial position there was **-ć-* or **-ćć-* (decisive Saami data are lacking).

Drv: Malayalam *pīcca* (n.) 'something small'; Kannada *pīcu, picce* 'a small size, weight, or length' ‖ Telugu *picca* 'low, short; insufficient' ‖ See DED 281. It is possible that the variation **pīc-/picc-* indicates the simplification of a root final consonant cluster.

Alt: Turkic: Tuva *bičä* (Castrén *pićä*), Karagas *bićä* 'small', Yakut *byčyk* (back vocalism, as in Mong.) 'trifle, small quantity'; OUighur *bičä* 'little'; Chuvash *pĕčĕk* 'little, younger', (Udmurt *pići*, *poći* and Hungarian *pici* are likely borrowed from OBulgar). The preservation of *–č-* in Yakut and Chuvash is due to the descriptive character of the word, cf. Azerbaijani *beǯǯä* 'small' (an expressive transformation?) ‖ Mong. 'small': WrMong. *bičі-qan* (with expressive change of vocalism: *bičі-ken* 'very small'), Khalkha *b'acxan*, Buryat *bišixan*, Kalmyk *bičkn̥* ‖ Cf. Ramstedt KW 47; Egor. 159; Vlad. 127. The primary form is **biča*, with subsequent generalization of front or back vocalism. In Mong. final **-a>-i* under the influence of palatal *č*. It is possible that such forms as Kurdi *bečuk* 'small', Persian *bača* 'boy', were borrowed from Turkic or Mongol (cf. Abaev 260 with a different interpretation); it is more difficult to explain Georg. *biǯ-* 'boy', which is hardly an indigenous Kartvelian word (despite Kl. 52).

♦ Cf. Schrader ZII 3, 93 (Uralic ~ Drav.), Menges StOF 288, 16 (Ural. ~ Drav. ~ Altaic). Uralic data allow for the reconstruction of **-ć- or *-ć-*. Following Menges, the descriptive character of this formation should be linked to its closeness to the sphere of child language (cf. similar forms in Romance: **pit-*, **pit-zinnus / pīssinus* 'small' (Meyer-Lübke 543-544). However, it is also possible to assume a substrate origin of these forms.

12. biǯʌ 'to break': S-H. *bsp-/bǥ-* 'to break, smash, press' ~ Kart. *biǯ-* 'to break, crumble' ~ I-E *peis-* 'to smash, crush, press' ~ Drav. *pīc-* 'to smash, shell, knead'.

S-H.: Semitic **bḏ-* (*bḏ'*, *bḏr*): Arab. *bḍ'* 'to cut', OSouth Arabian (Sabean) *bḏ'* 'region' (← 'part, piece'), Ugaritic *bṣ'* (*ṣ* < **ḏ*, as in a number of other instances) 'to tear apart', OHebr. *bṣ'* 'to break off' (> Hebr.-Aramaic *bṣ'*); Aramaic *b'r* (' < **ḏ*) 'to pick grapes' (← 'to trim'); OHebr. *bṣr* 'to trim', Akkad. *bṣr* 'to tear to pieces'. Cf. Aistl. 57; Ges. 109, 110. ‖ Berber: Tuareg *ebbeẓ* 'to crush, squash' (probably < **wbṣ*) ‖ Chadic: Hausa *'bàsā* 'to break off (branch, fruit)', Margi *'bàtsù* 'to break apart', ? Sokoro *ofocer* 'to break apart'; Chadic **'b* < **b* points to an adjacent glottalized **ṣ*. ‖ The variant **bḏ-* is probably secondary in comparison with **bṣ-* (assimilation to a voiced consonant).

Krt: Georg. *bič* 'to crumb', OGeorg. *bič* 'crumbs', *na-bič-* 'crumb (of bread)' ‖ Svan *bičḳw-/bečḳw-* 'to break apart (tr., intr.)' (a verbal type subject to ablaut, developed on the basis of the form with **i*) ‖ See Kl. 52.

I-E: OI. *pináṣṭi* (< **pi-n-es*) 'grinds, crushes', partic. *piṣ-ṭá* 'ground'; Avestan *piš-ant-* 'trampling' ‖ ? Grk. *πτίσσω*, (Attic) *πτίττω* 'I grind, smash' (probably transformed by analogy, cf. Bois. 822; *πτ-* is unclear) ‖ Lat. *pīnsō* 'I crush' ‖ MLG. *vīsel* 'mortar' ‖ Lith. *pìsti* 'coire', *paisýti* (iter.) 'to thresh'; OCS *pьxati* 'to shove, poke', Rus. *pest* 'pestle' ‖ See Pok. 796; Ernout-Meillet 900-1.

Drv: Tamil *picai* 'to knead with the fingers, to husk grain', Malayalam *piśiṭu* 'fruit husks'; Kota *pick-* 'to squeeze, pinch', Kannada, Tulu *pisuku* 'to squeeze, to knead' ‖ Centr. Drav.: Parji *pīc* 'to grind', Gondi *pisk-* 'to knead flour', Kuvi *pīc-* 'to roll, bind, tie up' ‖ Kurux *pickā'ā* 'to squeeze and make dents, flatten' ‖ See DED 275.

♦ Initial **b-* is reconstructed on the basis of Semito-Hamitic and Kartvelian data. In IE the expected structure of a voiced aspirate and voiceless affricate underwent a regular transformation before the spirantization of **č* > *s*: **biča* > **b^{h}ei/č/-* > **peis-*. Semito-Hamitic **ṣ* is probably the result of a secondary transformation of expected **t̲*, as in a number of other instances (e.g., see #53, 54, 56 below). The original meaning 'to break' became specialized in various ways in the different language groups.

13. bilwi 'cloud': S-H. *bjl* 'heavenly waters, cloud' ~ Ural. *pilwe* 'cloud' ~ Alt. [*buli-t* 'cloud'].

S-H.: OEgypt. *bj* (< **bjl*) 'sky, waters in the sky in which the sun god swims' ‖ Cushitic: Beja *bile, bire* '(f.) sky; (m.) rain', *bal* 'cloud', *bire* 'to fall (of rain)'; Somali (Isak) *bíjjó* m.pl., Galla (south.) *bije* 'water'; Kullo *bola*, Gofa *bolla* 'sky'; ? Gimirra (Montandon) *el*, (d'Abbadie) *wol* 'rain' ‖ ? Chadic **'bl-* (*'b* is unclear): Bachma *'bole*, Bata *bolē* 'rain'; Logone *bə́lúkwí* 'cloud'; Somrai *belani*, Tumak, Ndam *belan* 'rain' ‖ Cf. Cohen 175-6; Dolgopolsky ASb. 54. The original meaning was 'sky waters, cloud', from which develop, on the one hand, 'sky', and on the other, 'rain, water' (possibly not without the influence of Semito-Hamitic **b(w)l* 'to moisten', cf. #20 below)/

Url: 'cloud': Finn. *pilve-* (in Livonian *pīla* is a secondary *a*-stem, see Lakó NyK 51, 32) ‖ Saami (north.) *bâl'vâ* ‖ Mordvin: Moksha *pejəl'*, Erzya *pejel'*, (Wiedemann) *pale*; Mordvin *–j-* is unclear. ‖ Mari (west.) *pəl*, (east.) *pil'* ‖ Udmurt *pil'em*, Komi (OPerm.) *pil*, (contemp.) *piv* ‖ Hung. *fëlhő*; Khanty (Vakh) *pələŋ* (derivatives) ‖ Cf. Coll. 49; SKES 566; Lytkin 181.

Alt: Turkic **bulyt* 'cloud': Tuva (Castrén) *pulut*, (contemp.) *bulut*, Yakut *bylyt* (< **bulyt* with delabialization); OUighur *bulyt*, Uighur *bulut* (Turfan, Khami *pulut*), Uzbek *bulut*; Tatar *bolyt*, OKypchak (Cum.) *bulut*, (Leid.) *bulyt*; Turkmen *bulyt*, Azerbaijani *bulud*, Turkish *bulut*; Chuvash *pĕlĕt*, (east.) *pŏlŏt* (front vowels are secondary, as in Tatar dial. *bŏlŏt*). *Cf.* Räsänem Laut. 61; Egor. 156. Turkic data point to Altaic **bulit*, where *–t* is possibly an ossified plural suffix (cf. Doerfer 5-6).

?Krt: Zan: Chan *p̲ula*, (Atin.) *p̲ulera* 'cloud' (Chan *bulera* in Rosen Las. 34, 37 is evidently an erroneous transcription with *b* instead of *p*); Megrel *p̲ula* 'steam'. Cf. Kapshidze 299. ‖ Kartvelian *p̲* in place of the expected *b-* is unclear; *-u-* in the first syllable can be explained as metathesis: **blu- > bul-*.

♦ Cf. Schott ABAW 1847, 422 (Uralic ~ Altaic); Lindstr. 73 (Uralic ~ Altaic ~ Kartv.); Zif. 57; Räs. 30 (Uralic ~ Altaic); Bouda Lingua 2, 296 (Kartv. ~ Uralic). Initial **b-* is reconstructed on the basis of Semito-Hamitic and Altaic data. The vowel *–i-* in the first syllable is reflected in Semito-Hamitic and Uralic. The sonant **-w-* is preserved in Uralic, regularly lost in Altaic (with compensatory labialization of the vowel in the first syllable) and eliminated in Semito-Hamitic due to the formation of the tri-consonantal root **bjl*. Uralic **-e* and Altaic **-i* point to **-i* in final position.

14. (Descriptive) bil'ʌ 'to scream': Kart. *bir-* 'to sing' ~ I-E *b^{h}el-* 'to talk, roar' ~ Drav. *pil̤-* 'to scream'.

Krt: Chan *bir* 'to sing', Megrel *bir-* 'to sing, play' ‖ Sva *br-* (*br-jal-*) 'to sing', with reduction of the root vowel **i* ‖ Cf. Kl. 53; Chik. 254. [Ed. note: in Illich-Svitych's manuscript there is the notation "Svan. ?", because of the problems associated with the correspondence of Georg.-Zan *r* : Svan *l* < Nostratic **l'*, Cf. #29, 176, 202.]

I-E: OI. *bhāṣatē* (< **bhal-s-*) 'speaks, chatters' ‖ OIcl. *belja* 'to roar' ‖ OPr. *billīt* 'to speak'; Lith. *bìlti* 'to begin to speak' (acute intonation is secondary, cf. Lith. *ba˜lsas* 'voice') ‖ Tokharian AB *päl-, pāl-* 'to praise' ‖ See Pok. 123-124.

Drv: Tamil *piḷiṟu* 'to roar (of elephants); great noise' ‖ Telugu *pilucu* ‖ Kui *pṛi* 'cry of agony' ‖ See DED 279.

♦ Original **-l'-* is regularly reflected by Kartv. **-r-* and Drav. **-l̤-*.

15. bok/a/ 'to flee': I-E *b^heug-/b^heg^u-* 'to flee' ~ Ural. *pok-ta, poke-* 'to flee'.

I-E: 1. *b^heug-*: Grk. *øεύγω* 'I run away' ‖ Lat. *fugiō* (perf. *fūgī*) 'I run away' ‖ Lith. *būgti* (caus. *baugìnti*) 'to be frightened' ‖ 2. *b^heg^u-*: Grk. *øέβομαι* 'I run away', *øόβος* 'flight, fear' ‖ Lith. *bégti* (1st sg. pres. *bégu*) 'to run away'; Rus. *begú* 'I run away' ‖ cf. Pok. 152, 116. The variant *b^heug-*) with metathesis of the labial element.

Url: *pok-ta-* with inchoative (in Ugric, Selkup) and causative (in Mari) suffix *–t-* (cf. Leht. 301-302, 294-301): Mari (west. and east.) *poktə̑-* 'to drive, make flee' ‖ Hung. *fut-*, Khanty *pot-* 'to run away' ‖ Selkup *pakta-* 'to jump, run' ‖ Uralic **o* in this root (contrary to Collinder CG 12, where **u* is reconstructed) is indicated by Mari *o* (Uralic **u* gives Mari **ŭ*). The vowel **o* is reflected in Estonian (north.) *põgene-* (*õ* < **o*); other Balto-Finnic languages have secondary *a* in derivatives **pakene-* 'to run away', **pakoi* 'flight' (Finn. *pakene-, pako*, for more details see SKES 470).

?Alt: Tungus **pökti-* 'to run (away)': Nanai *pukči-*, Ulcha *pukti-*, Orok *pukči-*, Udihe *hukti-*, Negidal *hukti-*, Solon *uktäli-*, Evenki *hukti-*, Even *hut-*. Cf. Tsints. 158; Vasil. 491. The Tungus derivative with suffix *–ti-* (Benz. 1067) is similar to that in Uralic. If **bok/a/* (see below) is primary, it is possible to assume *bog-ti-* > **pökti-*with devoicing of *g* before *t* and assimilative devoicing of *b*.

?S-H: Note Cushitic forms: Saho (Irob) *bukā* 'flight', Gall *baq-*, Aviia *buk-/buq-*, Tembaro *bah-*, Hadiiya *bi-*, Uolamo *biqič-* 'to fun (away)', deriving from a form **b(w)k* or (?) **b(w)q*. Cf. Conti Rossini GSAs 18, 151; Dogl. ASb 53-54; Plazikowski-Wagner ZDMG 103, 393.

♦ Cf. Keppen 47 (I-E ~ Uralic), Dolg. 10 (I-E ~ Uralic ~ Altaic). The vocalism of the first syllable is preserved in Uralic, and it reconstruction is corroborated by I-E (**u̯*); I-E velar **-g-* (**b^heug-/b^hu̯eg-*) points to stem-final *–a*. It is possible to reconstruct original **pok/a/*. In this case Altaic **p* is regular, and I-E **b^h* could be explained as a result of the elimination of a structure with two voiced consonants (**beug-*); then Semito-Hamitic **b* is unclear.

16. bolʔi 'to grow (of plants)': S-H. *'bl*'leaf, growing plant' ~ I-E *b^helĥ-/ b^hleĥ-* 'plant, leaf, flower' ~ Drav. [*poli-* 'to grow, bloom'].

S-H.: Arab. *'ubl* 'aftergrass, newly-appeared foliage'; Syriac *ībel*, OHebr. *'åbal* 'meadow, valley' ‖ ? Berber: Tuareg *elu*'leaf', Izaian *ala* 'foliage', Zemmur *ala* 'crown of a tree' (possibly with loss of *b*, as in cases examined in Beguinot RANL 33, 186-199) ‖

Cushitic: Beja *baja, baje* m. 'leaf; Xamir *bəlbəla* 'branch'; Galla *bala*'leaf', Somali *balbālo* f. 'roof of branches with leaves'; Mao (north.) *ballo* 'grass' ‖ Chadic: Mubi *'bérijò* m. (pl. *'bèrè*) 'leaf'; *'b* from the combination of *' and *b*. ‖ See Illich-Svitych ASb. 28, 30-31; Dolgopolsky ASb. 53; Laoust 471; Reinisch SAW 1287, 19; Reinisch Som. 82. In Cushitic initial *' has probably disappeared without a trace.

I-E: 1. *b^hleh̨-: Lat. *flōs* (gen. *flōris*; *ō* < *oh̨) 'flower' ‖ MidIr. *bláth* m. 'flower' ‖ Goth. *blōma* m. 'flower', OHG. bluojen 'to bloom'; OHG. *blāt* (Gmc. *ē < *eh̨) 'flower', *blaɑ* (Germanic *a < *ə < *H̥) 'leaf' ‖ 2. "Stem I" *b^helh- (and zero-grade *b^hl̥h̨-): Armen. *bołboǰ* 'bud' (reduplication_; cf. Adjarian MSL 20, 162 ‖ Grk. *φύλλον* 'leaf' ‖ Alb. *bulë* 'bud, shoot' (*ul* < *l̥, contrary to Mann Lg. 26, 387) ‖ Lat. *folium* 'leaf' ‖ Irish *bile* 'small leaf' (< *beli̯o-, beli̯ā, see Stokes 174) ‖ Tokharian A *pält* 'leaf' ‖ Cf. Pok. 122 (the connection proposed here with I-E *b^hel- 'to swell' is doubtful); Bois. 1041.

Drv: South Drav.: Tamil *poli* 'to bloom, to flourish, to prosper', *pular* (< *polar) 'to ripen (of grain)', Malayalam *poli* 'growth, increase'; Kodagu *poli-* 'to grow, to increase (of harvest, livestock)', Tulu *poli* 'growth, abundance'. See DED 300. The original meaning was 'to grow, to flower'.

?Krt: We should also note Svan (Upper Bal.) *bāle* (< *bala-i*, cf. Lower Bal. dat. sg. *bala*; see Kaldani IDIa 9-10, 219); apparently, *bāl- is original. The supposition (Klimov Etim. 1963, 182) of borrowing by Svan from Ossetic (Iron) *bælas*, (Digor) *bælasæ* 'growing tree' is hardly probable.

♦ I-E and Dravidian forms suggest metathesis of *ʔ in Semito-Hamitic. Dravidian and I-E (palatal *h̨) data point to an original root final *-i.

17. (Descriptive) bongä 'thick, to swell': I-E *b^heng̑^{h}- 'thick, solid' ‖ Ural. *puŋka / poŋka* 'thick, swelling' ‖ Drav. *poṅk-* 'swell, boil over' ‖ ? Alt. [*boŋʌ* 'thick, big'].

I-E: OI. *bahú-* 'solid, abundant'; Iran.: Baluchi *baz* 'solid' ‖ Hittite *panku-* 'whole, all', *pangari̯ia-* 'to increase' ‖ Grk. *παχύς* 'thick, solid' (< *b^hn̥ĝ^h-u-, as in Indo-Iranian' ‖ OIcelandic *bingr* 'heap', OHG. *bungo* 'bulb' ‖ Latvian *bìezs* 'solid, thick' ‖ See Pok. 127-128.

Url: Finn. *punka* 'stout person', *punkea* 'pudgy, stout'; Est. *pung*, (Antaguse) *pong* 'something bulging, bulb, bud' ‖ Saami (north.) *bogge-* 'stout, stocky', *bugge-* 'tumor, lump' (Saamit *o* < *u*; in the latter form *u is preserved in a descriptive word) ‖ ? Udmurt *pog* 'clod, lump' (with anomalous development of vocalism); Komi *śin-bugyl'* 'eyeball' ‖

Hung. *bog(a)*, *bug* 'knot'; Khanty *poŋyə̑ɬ* 'knot on tree' ‖ See Uotila SChr. 67; SKES 641-642. Eston. dial. *pong* and Komi *bugyl'* reflect the archaic variant **poŋka*.

Drv: Tamil *poṅku* 'to boil, swell', Kota *poŋg-* 'to grow, increase'; Kannada *poṅgu-* 'to boil away, to widen'; Tulu *boṅgu-* 'to swell up', *boṅka* 'big' ‖ Telugu *poṅgu* 'to swell, to boil' ‖ Cent.Drav.: Kolami *poŋg-* 'to boil away', Naiki *poŋg-* 'to widen', Kuvi *pōng-* (with secondary length?) 'to swell up' ‖ Malto *poŋgž-* 'to increase, to abound' ‖ See DED 295-296. Sematic development: 'to swell up' → 'to boil away'.

?Alt: Tungus: Manchu *boŋgo* 'first, initial, main' (> Nanai, Ulcha, Udike *boŋgo*), Orok *boŋgo* 'lad', Solon *boŋon* 'thick, big'; cf. Tsints. 298. The original meaning is probably preserved in Solon: 'thick, big' → 'main, first'.

♦ Cf. SKES 642 (I-E ~ Uralic). The vowel **o* in the first syllable is preserved in Dravidian, Altaic, and possibly in Uralic. I-E palatal **ĝ^h* points to an original stem-final front vowel; Uralic forms suggest that it was **ä* (> *a* in accordance with vowel harmony).

18. boŕa 'brown, grey-brown': I-E *b^{h}er-*, *b^{h}e-b^{h}ru-*, *b^{h}reu-* 'brown' ‖ Alt. *boŕa* 'grey, brown'.

I-E: 1. **b^{h}er-*: OHG. *bero*, OE *bera* (< **beron*) 'bear' (< 'brown') ‖ Lith. *béras*, Latv. *bę̃rs* 'bay' (lengthened grade **ē*) ‖ 2. **b^{h}e-b^{h}ru-* (and secondary *b^{h}e-b^{h}ro-*: OI. *babhrús* 'reddish brown', (epic) 'big mongoose'; Avestan *bawra-* 'beaver', Iran. **bawra-* 'brown, yellow': Ossetic (Iron) *būr*, Yanghobi *vur*, Shughni *vur*, Persian *bōr* (North Slavic forms like Rus. *buryj* 'brown' and Polish *bury* are most likely borrowed from Iranian). Akkad. (Nuzi) *babrunnu* 'bay' is borrowed from an Indo-Iranian source. ‖ Other I-E languages have the meaning 'beaver': Lat. *feber* (more often *fiber* with secondary *i*) ‖ Celtic: Cornish *befer* ‖ OHG. *bibar*, OE *beofor* (< Gmc. **bēb(u)raz*) ‖ OPrussian *bebrus*, Lith. dial. *bebrús* (usually *bẽbras*, cf. Fraenk. 38); ORussian *bebrъ* (originally a *ŭ*-stem) ‖ The reduplication **b^{h}e-b^{h}ru* indicates a stem **b^{h}reu-*, also preserved (with suff. *–H-*) in Germanic **brūna-* 'brown' (OHG., OE *brūn*). ‖ See Pok. 136; Vas. 1, 97; Ernout-Meillet 412; Mayr. 2, 409; Horn GlrPh 12, 49.

Alt: Turkic **bor'*: OTurkic, OUighur (Kashghari), Karakalpak, Tatar (mishar) *boz* 'grey'; OOguz (Ibn-Muhanna) *boz* 'ashy, whitish grey', Turkmen, Azerbaijani, Turkish *boz* 'brown, grey' (in Gagauz *bōz* the vowel length is unclear0. udmurt *purič*, *puryś* 'grey' probably stems from OBulgar **porăć* (< **bor'Λ- či*). Chuvash *păvăr(lă)* 'roan', often derived from **bōr'*, is in fact a borrowing from Mongolian, cf. WrMong. *bugural*, *bugurul* 'roan' ‖ Mong. **bora* 'grey': MidMong. (MNT) *boro*, (MA) *bora* (MA also *boron* 'greyish', cf. Evenki *boroŋ* 'brownish-grey' < Mong.), WrMong. *boro*, Ordos

boro, Khalkha *boră*, Monguor, Buryat, WrOirat *boro*, Kalmyk *borŏ* ‖ Cf. Ram. 112; Poppe 20; Biishev 36; Egor. 146; Poppe Mong. 20.

?S-H: East Cushitic forms deserve attention: Galla *bōra* 'yellow, cream-colored', Somali (Reinisch) *bōra* (*barōr* m. 'brown color; skewbald horse'), Kambatta *bora* 'grey, brown, dirty-colored' (Cushitic > Semitic: Harari *bōra*, Amharic *bora* 'brown', see Leslau Har. 44); the vowel *ō* possibly points to **bwr*.

♦ Cf. Tromb. 400-401; Dolg. 12 (I-E ~ Altaic). Dolgopolsky ASb. 57 (I-E ~ Altaic ~ S-H); Abaev 1, 271 ("a Eurasian substrate word"). In I-E the expected and regular **b^{h}eur-/b^{h}u̯er-* was transformed to **bher-/bhreu-* (with metathesis) during the period when roots of this type were eliminated. Judging by the I-E and Altaic data, the original meaning was 'brown animal's coat'.

19. buHi 'to grow up, arise': I-E *b^{h}euH-* 'grow up, become, be' ~ Ural. *pūγe* 'tree' ~ Alt. *büi* 'to be'.

I-E: OI. *ábhūt* aor. (pres. *bhávati* is secondary) 'became' ‖ Arm. *busanim* 'I grow' ‖ Gk. *ἔφυν* aor. 'I became, I grew up', *φυή* 'growth' ‖ Alb. *buj* (< **bunjō*) 'I live, I spend the night' ‖ Lat. *fuī* perf. 'was' ‖ OHG. *būan* 'to live, to process'; OE *bū* n. (pl. *by*) 'dwelling' (< **būwi-*) ‖ OPrussian *boūt*, Lith. *būti*, Latv. *bût*, OCS *byti* 'to be', *bylьje* 'plant, herb' ‖ For more details see Pok. 146-150 (with the erroneous suggestion of a link with the descriptive **beu-* 'to swell up'). The semantic development was 'to grow up' → 'to become, to be.' In I-E the stem **b^{h}erH-* was used as the aorist of the continuous verbal stem **ĥes-* 'to be'.

Url: 'tree': Finn. *puu* ‖ Mari *pu* ‖ Udmurt, Komi *pu* ‖ Hung. *fa*, Mansi *-på* (in compounds) ‖ Samoyedic **pō/pā* (Lehtisalo MSFOu 56, 90): Nenets *p'ā, pe͡a*, Enets (Baikha) *pē*, Ngasan *fā*, Selkup (Tym) *pō*, (Karasino) *pū*, Kamas *på*, Karagas *xy*, Koibal *pa*, Motor *ha*, Taigi *hä* ‖ Cf. SKES 664; Coll. 53; Szin. 145. Apparently, the bisyllabic form **pūγe* is original; it is suggested, in particular, by Samoyedic forms with a front vowel (influence of the second syllable); Cf. E. Itkonen FUF 30, 1-2.

Alt: Mong. **bu-/ bü-* 'to be'. The variant **bu* is represented only in the archaic *i*-participle in MidMong. and WrMong.: *bu-i* 'is' (this is hardly a purely orthographic variant with *u* in place of *ü*, contrary to Ligett AOH 4, 129; Poppe StOF 14(8), 13-15; cf. Vladimirtsov DAN 1924 B, 54). The variant **bü-* is found in WrMong. *bü-kü* (inf.), *bü-lüge* (part. perf.) and possibly in *i*-participles in contemporary languages (Dagur *bäi̯*, Khalkha *bij*,

Mongur *wī*, Buryat *bī*, Kalmyk *bi*, see Sirni 89; some of these forms may also reflect **bu-i* with secondary assimilation) ‖ Tungus **bi-* 'to be': *bi-* in all Tungus languages, see Tsints. 297; Vasil. 53 ‖ Cf. Poppe 112; Ramstedt SKE 68; Ram. 57. The Mongolian and Tungus forms point to Altaic **bui* (from an earlier **buHi*) with various results of the monophthongization of the cluster *–ui*.

?S-H: There are a number of isolated forms: OEgypt. *b, .t* 'shrubbery', Coptic (Said) *bō* 'tree, usually fruitbearing'; see Spieg. 15 ‖ Chadic: Chibak (Margi group) *fwà* (< **bwa*) 'tree' ‖ ? West Cushitic: Kaffa *bē* 'to be, live' (Reinisch), *bō* 'existence', Shinasha *bi*, Anfillo *bē* 'to be'; Somali denominal verbal suffix *–ba* could derive from this stem. Cf. Cerulli St. 4, 247, 409; Reinisch SAW 116, 268. (Ed. note: This suffix, contrary to Cherulli, is not *–ba*, but *–aw-, -ow- / -ōb-*. See Moreno Som. 97, 267, 365; R.C. Abraham. *Somali-English Dictionary*. London, 1964, pg. 275; C.F. Bell. *The Somali Language*. London, 1953, pp. 105-6.

♦ Cf. Tromb. 368; Ramstedt JSFOu 53(1), 23 (I-E ~ Altaic). The **u* vocalism of the first syllable is reflected in Uralic, Altaic, and indirectly in I-E (**u̯*). The presence of **H*, preserved in I-E, is confirmed by Uralic data (cf. also originally bisyllabic Altaic **bui*, indicating **buHi*; the expected length in Altaic is probably lost in hiatus). The semantic evolutioni 'to grow up, to arise' → 'to become, to be' apparently took place independently in I-E and in Altaic (where only its last stage is attested). In Uralic the meaning was specialized from 'to grow up' → 'plant, tree'.

20. bulʌ 'precipitation, mud': S-H. *b(w)l* 'moist, to dampen; to mix' ~ ? E-E *b^{h}l-end^h-* 'turbid; mix' ~ Alt. *bulʌ* 'mud, to stir up, to mix'.

S-H: Semitic **bl-* (reduplications **blbl, *bll*): Arab. *bll* 'to wetten, to mix' (with further semantic development: intens. *blbl* 'to put into motioin, to throw into disorder', cf. Tirginya *bälbälä* 'to agitate, mix'); OSouthArabian (Sabean) *bll* 'to irrigate; Syriac *bll* 'to mix, sprinkle', OHeb. *bll* 'to mix'; Akkadian *bll* 'to mix, to sprinkle'. A more archaic form is preserved in Arab. *bwl* 'to urinate' ‖ OEgypt. *b,j* (< **blj*) 'to be damp (from sweat)' ‖ Berber: Tuareg *bəlulu* (intens.) 'to be damp' (points to **bwl*) ‖ Cf. Calice 60; Soden AW 97; Ges. 101; Leslau EContr. 13. In Semitic there are the meanings 'to mix (liquid)' and 'to wetten; damp'; Egypt. and Berber have only the latter meaning.

?I-E: Germanic: OE *blandan*, OHG. *blantan* 'to mix, to stir up' ‖ Lith. *blę̃sti* (1st sg. *blendžiù*) 'to mix food with flour', *blandùs* 'turbid, lumpy (of soup)'; OCS. *blędǫ* 'I err' ‖ Cf. Pok. 157-158. Words showing further semantic development 'blind, to see poorly' (← 'turbid') also belong here: Gmc. **blindaz* 'blind' etc. (see Fraenk. 47-48); contrary to Dolgopolsky ASb. 57-58, they are not connected with Nostratic **bal-* 'blind.' IE **b^{h}lend^h-* is probably a suffixal enlargement of a lost **b^{h}el-*.

Alt: Turkic **bulγa-* 'to mix, to stir up': OTurkic (Yenisei) *bulγa-* ('to trouble, to be agitated'); Yakut *bulā-/bylā-*; OUighur *bulγa-* ('to become confused'), Uighur *bulγa-*; Karakalpak. Kazakh, Nogai *bylγa-* (delabilization), OKypchak (Cum.) *bulγa-*; Turkmen, Azerbaijani. Turkish *bula-* (< **bulγa-*). There is the variant **bulka-* in OUighur *bulqa*, Chuvash *pălxan-* (refl. 'to become turbid'). Turkic has old derivatives with the suffix *–γa-* (*-ka-*) ‖ Mong. **bul-*: WrMong. *bul-ai* 'dirty, foul', *bulaŋgir* 'turbid, unclean', Khalkha *bulai* 'loathsome, foul'; WrOirat *bulaŋggir* 'turbid', Kalmyk *bulā̄* 'dirty'; OMoghol (Zirni) *bula* 'polluted' ‖ Tungus: Evenki, Even *bulā̄* (< **bulai*) 'swamp, marsh' ‖ Cf. Ramsedt JSFOu 28(3), 13; Egor. 147; Ramstedt KW 59; Zirni 93. The original meaning was 'turbid(ity)' whence (Turkic) 'to stir up' → 'to mix'.

♦ The **u* vocalism is preserved in Altaic, and its traces can be found in Semito-Hamitic (**w*). The original meaning 'precipitation' developed in S-H in two different directions: 'damp, to dampen, become damp' and 'to mix a liquid' → 'to mix'.

21. bura 'to bore'; S-H *b(w)r* 'to bore, dig; opening' ~ ? Kart. [*br(u)-* 'to turn'] ~ I-E *b^{h}er-* 'bore, dig, prick' ~ Ural. *pura* 'instrument for boring; bore, hollow, dig' ~ ? Drav. *pōṟ* 'opening' ~ Alt. [*bura-* 'to turn, bore'].

S-H: Semitic **br-*: Arab. *rw / brj* 'to cut out', Geez *brr* 'to cut through, to drill through'; Heb-Aram. *brz* 'to drill'; Semitic **bi'r* 'ditch, well' might also belong here (see Ges. 81; Aistl. 46), if ' is secondary (due to the formation of the usual tri-consonantal stem). The archaic form **bwr* probably is preserved in OHebr. *bōr* (< **bawr-*) 'reservoir hewn in rock', Akkad. *būru* 'artificial reservoir, well', and (?) Arab. *bū'ra* f. (by analogy with *bi'r* ?) 'pit dug into the earth for preparation of food'. ‖ OEgypt. *wbr* (*w-* is a prefix) 'to drill', *bꜣbꜣ* (< **br-br*, reduplication) 'hole', *bꜣbꜣ* (< **brr* or **br'*) 'snake's hole' ‖ Berber: Tuareg *ebrek* 'to dig (dirt, with the hand)' ‖ Cushitic: Somali *bōr* 'to dig', *bōrān* f. 'pit in earth', Galla (Cerulli) *bōr* 'to dig', Hadiyya *bare* 'ditch, well'; *ō* in Somalil and Galla points to **bwr* ‖ cf. Cohen 172-173; Leslau EContr. 12; Cerulli St. 2, 194.

?Krt: Georg. *brun-* (< **br(w)-in-*, caus.) 'to turn', *borbal-* (< **bṛ-bar-*, reduplication) 'wheel. potter's wheel; whirlwind'. The original form of the stem is preserved in Georg. *(tav-)bru* 'vertigo', (Lower Imereti, see Beridze 6) *bru-* 'to fiddle about, to rush about' (← 'to spin around'). Cf. Schmidt St. 98; Gam.-Mach. 314.

I-E: OInd. (in grammatical treatises) *bhṛṇāti* (injures'; Avestan *tiži-bāra-* 'with a sharp blade' ‖ Armen. *brem* 'I dig up, dig out', *br-ič̣* 'hoe' ‖ Gk. *ϕάρος* (*αρ* < **-ṛ-*) n. 'plough' ‖ Alb. *birë* (< **b^{h}ṛ-*) 'hole' ‖ Lat. *forō* (inf. *forāre*, denominal derivative) 'I drill', *forāmen*

'hole' ‖ Mir. *bern(a)* f. 'fissure, slit' ‖ OIce. *bora* 'hole'; OIce. *bora*, OHG. *borōn* 'to drill' ‖ Lith. *bárti* 'to scold' (accentuation is secondary, cf. *barnìs*, acc. *bãrnį* 'quarrel'); OCS. *borjǫ sę* 'I struggle' ‖ See Pok. 133-135.

Url: Finn. *pura* 'drill, chisel, large awl' ‖ Saami (north.) *bore-* 'sharp edge (of a tool)' ‖ Komi *pyr-ńol* 'drill' (*ńol* 'arrow'); for more details see Uotila Kons. 160 ‖ Hung. *fúr-* 'to drill'; Mansi (south.) *pā̆r-*, (north.) *pōr* (< **pār-*) 'to hollow out, to dig', Khanty (north. – Kazym) *pŏrĭ-* 'to drill'; Mansi *purä* 'awl', Khanty (east.) *pŏr* 'drill' ‖ Nenets *parę̄'* ', (forest) *parrȳ*, Selkup (Upper Ob) *pareŋ*, Kamas *paraŋ* 'drill' ‖ Cf. SKES 649-650 (a descriptive origin is assumed0; Coll. 52.

?Drv: Tamil *pō̲rai* 'hole, hollow', *pōr* 'hollow'; Kota *bōr* 'vagina', Toda *pȳr* 'hollow', Kannada *pōr* 'hole' ‖ Telugu *bo̲rija*, *bo̲r̲re* 'hole, pit' ‖ CentrDrav.: Konda *bo̲r̲ro* 'hole' ‖ See DED 203. Forms with *–r-* are probably secondary. Drav. **ō* in place of expected **u* is perhaps due to the influence of Drav. **pōr-* 'to split' (DED 303), form which Drav. **porai* 'hole, slit' is derived (DED 286).

Alt: Turkic **bur(a)-*: Uighur (south.) *bur-* 'to turn', *buru-* (< **bura-*) 'to twist', Uzbek *burɑ* 'to rotate'; Kirghiz, Karakalpak, Nogai, Kumyk *bur-*, OKypchak (Cum.) *bur-* (aor. *burɑr* < **bura-*) 'to twist'; Turkmen, Azerbaijani, Turkish *bur-* 'to twist'; Chuvash *păr-* 'to turn, to twist'. The meaning 'to drill' is preserved in the derivative **bur(a)ɣa* 'drill': Uighur *burɣa*, OKypchak (Dum.) *burau*, Turkish *burgu*, etc.; see Egor. 147-148 ‖ ? Tungus: Evenki *buru* (acc. *–wä*; front vocalism is unclear) 'whirlpool'.

♦ Cf. Lindstr. 76 (I-E ~ Uralic ~ Altaic); Moller 33 (Semitic ~ I-E); Budenz 543; Sauv. 48-49 (Uralic ~ Altaic); Wiklund MO 1, 59-60 (I-E ~ Uralic); Sinor TP 37, 235; SKES 650 (I-E ~ Uralic ~ Altaic). The original vowel of the first syllable **u*, preserved in Uralic and Altaic, is reflected in Semito-Hamitic (**w*) and possibly in Kartv. (**brw-* (> **bru*) from **bwr* with metathesis ?). In I-E the expected "stem I" **b^{h}eur-* is simplified into **b^{h}er-* (two adjacent sonants). The original meaning was 'to drill, to make an opening by rotary motion' (mankind had already invented techniques for [drilling/boring in the Upper Paleolithic). Such a meaning, intact in Semito-Hamitic, Uralic, and partly in Indo-European and Altaic, evolved in some quarters in the direction of 'turn, twist' (Kartvelian, partly in Altaic), in others in the direction of 'opening, aperture' (Dravidian, partly in Semito-Hamitic).][2]

[2] The translator's manuscript ended abruptly after the words "... techniques for ... " in this paragraph. I supplied the rest of the translation, marked by brackets [ ]. [Ed. JDB]

MOTHER TONGUE
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Two New Publications In Nostratic Comparative Linguistics

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Introduction

The year 2008 has been most fortunate for Nostratic comparative linguistics. Not only is it the twentieth anniversary of the First International Interdisciplinary Symposium on Language and Prehistory, two new, extremely important works have appeared. The first is Aharon Dolgopolsky's massive *Nostratic Dictionary* (containing approximately 3,000 putative Nostratic etymologies), which is available online at http://www.dspace.cam.ac.uk/handle/1810/196512 and at http://www.nostratic.ru/index.php?page=authors&id=4. The other is Allan R. Bomhard's *magnum opus* entitled *Reconstructing Proto-Nostratic: Comparative Phonology, Morphology, and Vocabulary* (two volumes, 1,820 pages), which has just been published by E. J. Brill (http://www.brill.nl/product_id30791.htm). Though there are similarities between these two works, such as a large number of common Nostratic etymologies, there are also some very deep differences. In this paper, we will be exploring these similarities and differences. Illič-Svityč's views will also be discussed.

Phonology

According to Dolgopolsky, Proto-Nostratic had a rich system of consonants and seven vowels. Dolgopolsky reconstructs the Proto-Nostratic consonant system as follows:

Stops and Affricates			Fricatives		Central		Lateral	
Voiced	Voiceless	Emphatic	Voiced	Voiceless	Approximants	Nasals	Sonants	Vibrants
b	p	ṗ			w	m		
d	t	ṭ				n	l	
ʒ	c	ç	z	s				
ǯ	č	č̣	ž	š		ṅ (= ŋ)	ļ	r
ʑ	ć	ć̣	ź	ś	y	ń	Ĺ	ŕ
ʒ̇	ĉ	ĉ̣		ŝ				
g	k	ḳ				ŋ		
ɡ	q	q̇	ɣ	χ				
				ħ (= ḥ)	ʕ			
	ʔ			h				

Symbols: ʒ = d͡z; c = t͡s; ǯ = d͡ž; č = t͡š; lateral obstruents ż, ĉ, ç, , ŝ = lateralized ʒ, c, ç, z, s; palatalized consonants ʒ́, ć, ḉ, ź, ś, ń, ĺ, ŕ = palatalized ʒ, c, ç, z, s, n, l, r; ɭ and ṅ (= ɳ) = cacuminal or retroflex l and n; uvular stops: ɢ (voiced), q (voiceless), q̇ ("emphatic"); uvular fricatives: χ = Spanish j, ɣ = Arabic ġ /ġ/; epiglottal (pharyngeal) consonants: voiceless ħ (= ḥ = Arabic ح), voiced ʕ (= Arabic ع).

The system of vowels reconstructed by Dolgopolsky is identical to that previously reconstructed for Proto-Nostratic by Illič-Svityč:

i u ü
e o
a ä

Bomhard, on the other hand, reconstructs the Proto-Nostratic phonological system as follows:

Stops and Affricates:

p^h	t^h	c^h	$č^h$	t^{yh}	$t͡ɬ^h$	k^h	k^{wh}	q^h		
b	d	ʒ	ǯ	d^y	d͡ɮ (?)	g	g^w	ɢ		
p'	t'	c'	č'	t'^y	t͡ɬ'	k'	k'^w	q'	q'^w	ʔ

Fricatives:

		s	š	s^y					h	ħ
		z	ž (?)	z^y (?)						ʕ

Glides:

w				y						

Nasals and Liquids:

m	n			n^y		ŋ				
	l			l^y						
	r			r^y						

Vowels: i (~ e) u (~ o)
e o
(ə ~) a

Also the sequences: iy (~ ey) uy (~ oy) ey oy (əy ~) ay
iw (~ ew) uw (~ ow) ew ow (əw ~) aw

While the actual reconstruction of the Proto-Nostratic phonological system is fairly close, Dolgopolsky and Bomhard arrive at their reconstructions through two different sets of sound correspondences. Though Dolgopolsky mostly adheres to the sound correspondences originally established by Illič-Svityč, he does make some refinements based upon his own research. Illič-Svityč did not prepare a table of Nostratic sound correspondences himself, but the work was done for him by his friend Vladimir Dybo and included at the beginning of volume 1 (pp. 147—171) of Illič-Svityč's posthumous Nostratic Dictionary, *Опыт сравнения ностратических языков (семитохамитский, картвельский, индоевро-пейский, уральский, дравидийский, алтайский) [An Attempt at a Comparison of the Nostratic Languages (Hamito-Semitic, Kartvelian, Indo-European, Uralic, Dravidian, Altaic)]* (Moscow: Nauka [1971—]). The following table is taken from p. 147 of this dictionary and includes only the stops:

Nostratic Initial	Nostratic Medial	Afrasian (Afrasian)	Kartvelian	Indo-European	Uralic	Dravidian	Altaic
p‘-		p	p, ṗ	p	p-	p-	p‘-
	-p‘-	p	p	p	-pp- ~ -p-	-pp- ~ -p-	-p- ~ -b-
p-		p_1	p_1 (p ~ b)	p ~ b	p-	p_1- (p- ~ v-)	p-
	-p-	p_1	p_1 (p ~ b)	p ~ b	-p-	-pp- ~ -v-	-b-
b-		b	b	bh	p-	p-	b
	-b-	b	b	bh	w-	-?- ~ -v-	-b-
ṭ-		ṭ (t)	ṭ	t	t-	t-	t‘-
	-ṭ-	ṭ (t)	ṭ	t	-tt- ~ -t-	-t(t)-	-t-
t-		t	t	d	t-	t-	t-
	-t-	t	t	d	-t-	-t(t)-	-d-
d-		d	d	dh	t-	t-	d-
	-d-	d	d	dh	-δ-	-ṭ(t)-	-d-
ḳ-		q (k)	ḳ	k̂, k, k	k-	k-	k‘-
	-ḳ-	q	ḳ	k̂, k, k	-kk- ~ -k-	-k(k)-	-k- ~ -g-
k-		k	k	ĝ, g, g	k-	k-	k-
	-k-	k	k	ĝ, g, g	-k-	-k(k)-	-g-
g-		g	g	ĝh, gh, gh	k	k-	g-
	-g-	g	g	ĝh, gh, gh	-γ-	-:Ø-	-g-

Dolgopolsky proposes the following Nostratic sound correspondences (as above, only the stops are given):

Nost.	Sem.	Eg.	Berber	Kart.	IE	Uralic	Turk.	Mong.	Tung.	Drav.
*b-	*b	b	*b	*b	*b^h	*p	*b	*b	*b	*p
*-b-	*b	b	*b, *β	*b	*b^h	*w, ⊥_/*p	*b	*b	*b	*v
*p-	*p	f	*f	*p	*p, *b	*p	*b, *p‾	*φ, ?*b	*p	*p
*-p-	*p	f	*f	*p, ?*b	*p, *b	*p, ?*w	*Ø	*φ > *ɣ	*b	
*ṗ-	*p	p	*f	*p, *ṗ	*p	*p	*h > *Ø	*φ	*p	*p
*-ṗ-	*p	p	*f	*p, *ṗ	*p	*p	*pp	*p, *b	*b	*pp
*d-	*d	d	*d	*d	*d^h	*t	*ȷ	*d, _i/*ʒ́	*d	*t
*-d-	*d	d	*d	*d	*d^h	*δ	*δ	*d	*d	*t/tt
*t-	*t	t	*t	*t	*d	*t	*t‾	*d, _i/*ʒ́	*d	*t
*-t-	*t	t	*t	*t	*d	*t	*t	*d	*d	*ṭ
*ṭ-	*ṭ, *t	d	*ḍ	*ṭ	*t	*t	*t‘	*t, _i/*ć	*t	*t
*-ṭ-	*ṭ, *t	d, t	*ḍ, *t	*ṭ	*t	*tt	*t‘	*t	*t	*tt/t
*g-	*g	g, 3	*g	*g	*g^h, *$\hat{g}^h$, *g^{wh}	*k	*k‾	*g, *g	*g	*k
*-g-	*g	g, 3	*g	*g	*g^h, *$\hat{g}^h$, *g^{wh}	*γ	*g	*g, *g, *γ, *ɣ	*g	*k
*k-	*k	k, c	*k, *g?	*k	*g, $\hat{g}$, *g^w	*k	*k‾	*k, *q	*k	*k
*-k-	*k	k, c		*k	*g, $\hat{g}$, *g^w	*k	*g, *k	*g, *g, *γ, *ɣ	*g	*k
*ḳ-	*ḳ, *k	q	*ɣ̣, *k	*ḳ	*k, $\hat{k}$, *k^w	*k	*k‘, *k‾	*k, *q	*x	*k
*-ḳ-	*ḳ	‘?		*ɣ	*x, *x^w, [*x̂?]	*Ø	*Ø	*Ø	*Ø, ?*g	*Ø

Bomhard faults the above correspondences. He feels that Illič-Svityč and Dolgopolsky made a fundamental mistake in trying to compare the glottalized stops of Proto-Kartvelian and Proto-Afrasian with the traditional plain voiceless stops of Proto-Indo-European. According to Bomhard, their reconstruction would make the glottalized stops the least marked members in the Proto-Nostratic labial series and the most marked in the velar series. Such a reconstruction is thus in contradiction to typological evidence, according to which glottalized stops uniformly

have the opposite frequency distribution (most marked in the labial series and least marked in the velar series). The reason that Illič-Svityč's and Dolgopolsky's reconstruction contradicts the typological evidence is as follows: Illič-Svityč posits glottalics and Dolgopolsky emphatics for Proto-Nostratic on the basis of a small number of seemingly solid examples in which glottalics in Proto-Afrasian and/or Proto-Kartvelian appear to correspond to traditional plain voiceless stops in Proto-Indo-European. On the basis of these examples, they assume that, *whenever there is a voiceless stop in the Proto-Indo-European examples they cite, a glottalic/emphatic is to be reconstructed for Proto-Nostratic, even when there are no glottalics in the corresponding Kartvelian and Afrasian forms*! This means that the Proto-Nostratic glottalics/emphatics have the same frequency distribution as the Proto-Indo-European plain voiceless stops in the systems proposed by Illič-Svityč and Dolgopolsky. Bomhard points out that this cannot possibly be correct. The main consequence of the mistaken comparison of the glottalized stops of Proto-Kartvelian and Proto-Afrasian with the traditional plain voiceless stops of Proto-Indo-European is that Illič-Svityč and Dolgopolsky are led to posit forms for Proto-Nostratic on the basis of theoretical considerations but for which there is absolutely no evidence in any of the Nostratic daughter languages. Bomhard notes that his criticisms do not necessarily imply that all of the etymologies proposed by Illič-Svityč and Dolgopolsky on the basis of the mistaken sound correspondences are invalidated. In many cases, the etymologies are solid, but the Proto-Nostratic reconstructions simply need to be corrected. Other examples adduced by Illič-Svityč and Dolgopolsky admit alternative explanations, while still others are questionable from a semantic point of view and should be abandoned. Once the questionable examples are removed, there is an extremely small number (no more than a handful) left over that appear to support their position. However, compared to the massive counter-evidence advanced by Bomhard in which glottalized stops in Proto-Kartvelian and Proto-Afrasian correspond to similar sounds (the traditional plain voiced stops) in Proto-Indo-European, even these residual examples become suspect (they may be borrowings or simply false cognates). Finally, there are even some examples where the comparison of glottalized stops in Proto-Kartvelian and Proto-Afrasian with plain voiceless stops in Proto-Indo-European is correct. This occurs in the cases where two glottalics originally appeared in a Proto-Nostratic root: **C'VC'-*. Such roots are preserved without change in Proto-Kartvelian and Proto-Afrasian, while in Proto-Indo-European, they have been subject to a rule of regressive deglottalization: **C'VC'- > *CVC'-*. Needless to say, Dolgopolsky rejects Bomhard's criticism.

Bomhard proposes the following Nostratic sound correspondences (only the consonants are given):

Proto-Nostratic	Proto-IE	Proto-Kartvelian	Proto-Afrasian	Proto-Uralic	Proto-Dravidian	Proto-Altaic	Proto-Eskimo
b-	bʰ-	b-	b-	p-	p-	b-	p-
-b-	-bʰ-	-b-	-b-	-w-	-pp-/-vv-	-b-	-v-
pʰ-	pʰ-	p-	p-, f-	p-	p-	pʰ-	p-
-pʰ-	-pʰ-	-p-	-p-, -f-	-p-	-pp-/-v-	-pʰ-	-p(p)-
p'-	(p'-)	p'-	p'-			p-	
-p'-	(-p'-)	-p'-	-p'-			-p-	
d-	dʰ-	d-	d-	t-	t-	d-	t-
-d-	-dʰ-	-d-	-d-	-t-	-t(t)-	-d-	-ð-
tʰ-	tʰ-	t-	t-	t-	t-	tʰ-	t-
-tʰ-	-tʰ-	-t-	-t-	-t(t)-	-tt-	-tʰ-	-t(t)-
t'-	t'-	t'-	t'-	t-	t-	t-	t-
-t'-	-t'-	-t'-	-t'-	-t-	-t(t)-	-t-	-t-
dʸ-	dʰ-	ǯg-	dʸ-	tʸ-	c-	ǯ-	c-
-dʸ-	-dʰ-	-ǯg-	-dʸ-	-tʸ-	-c(c)-/-y-	-ǯ-/-d-	-c-
tʸʰ-	tʰ-	čk-	tʸ-	tʸ-	c-	čʰ-	c-
-tʸʰ-	-tʰ-	-čk-	-tʸ-	-tʸ-	-c(c)-/-y-	-čʰ-	-c(c)-
t'ʸ-	t'-	č'k'-	t'ʸ-	tʸ-	c-	č-	c-
-t'ʸ-	-t'-	-č'k'-	-t'ʸ-	-tʸtʸ-	-c(c)-/-y-	-č-	-c-
sʸ-	s-	šk-	sʸ-	sʸ-	c-	s-	
-sʸ-	-s-	-šk-	-sʸ-	-sʸ-	-c(c)-/-y-	-s-	
ʒ-	dʰ-	ʒ-	ʒ-	č-	c-	ǯ-	c-
-ʒ-	-dʰ-	-ʒ-	-ʒ-	-č-	-c(c)-	-ǯ-/-d-	-c-
cʰ-	tʰ-	c-	c-	č-	c-	čʰ-	c-
-cʰ-	-tʰ-	-c-	-c-	-č-	-c(c)-	-čʰ-	-c(c)-
c'-	t'-	c'-	c'-	č-	c-	č-	c-
-c'-	-t'-	-c'-	-c'-	-č-	-c(c)-	-č-	-c-
s-	s-	s-	s-	s-	c-	s-	
-s-	-s-	-s-	-s-	-s-	-c(c)-	-s-	
z-	s-	z-	z-	s-		z-	
-z-	-s-	-z-	-z-	-s-			
ǯ-	dʰ-	ǯ-	ʒ-	č-	c-	ǯ-	c-
-ǯ-	-dʰ-	-ǯ-	-ʒ-	-č-	-c(c)-	-ǯ-/-d-	-c-
čʰ-	tʰ-	č-	c-	č-	c-	čʰ-	c-
-čʰ-	-tʰ-	-č-	-c-	-č-	-c(c)-	-čʰ-	-c(c)-
č'-	t'-	č'-	c'-	č-	c-	č-	c-
-č'-	-t'-	-č'-	-c'-	-č-	-c(c)-	-č-	-c-
š-	s-	š-	s-	s-	c-	s-	
-š-	-s-	-š-	-s-	-s-	-c(c)-	-s-	
g-	gʰ-	g-	g-	k-	k-	g-	k- q-
-g-	-gʰ-	-g-	-g-	-x-	-k-	-g-	-γ-

Proto-Nostratic	Proto-IE	Proto-Kartvelian	Proto-Afrasian	Proto-Uralic	Proto-Dravidian	Proto-Altaic	Proto-Eskimo
kʰ-	kʰ-	k-	k-	k-	k-	kʰ-	k- q-
-kʰ-	-kʰ-	-k-	-k-	-k(k)-	-k(k)-	-kʰ-	-k(k)- -q(q)-
k'-	k'-	k'-	k'-	k-	k-	k-	k- q-
-k'-	-k'-	-k'-	-k'-	-k-	-k(k)-	-k-	-k- -q-
gʷ-	gʷʰ-	gw/u-	gʷ-	k-	k-	g-	k- q-
-gʷ-	-gʷʰ-	-gw/u-	-gʷ-	-x-	-k-	-g-	-γ-
kʷʰ-	kʷʰ-	kw/u-	kʷ-	k-	k-	kʰ-	k- q-
-kʷʰ-	-kʷʰ-	-kw/u-	-kʷ-	-k(k)-	-k(k)-	-kʰ-	-k(k)- -q(q)-
k'ʷ-	k'ʷ-	k'w/u-	k'ʷ-	k-	k-	k-	k- q-
-k'ʷ-	-k'ʷ-	-k'w/u-	-k'ʷ-	-k-	-k(k)-	-k-	-k- -q-
G-	gʰ-	G-	G- (?)	k-	k-	g-	k- q-
-G-	-gʰ-	-G-	-G- (?)	-x-	-k-	-g-	-γ-
qʰ-	kʰ-	q-	q- (?)	k-	k-	kʰ-	k- q-
-qʰ-	-kʰ-	-q-	-q- (?)	-k(k)-	-k(k)-	-kʰ-	-k(k)- -q(q)-
q'-	k'-	q'-	q'- (?)	k-	k-	k-	k- q-
-q'-	-k'-	-q'-	-q'- (?)	-k	-k(k)-	-k-	-k- -q-
q'ʷ-	k'ʷ-	q'w/u-	q'ʷ- (?)	k-	k-	k-	k- q-
-q'ʷ-	-k'ʷ-	-q'w/u-	-q'ʷ- (?)	-k-	-k(k)-	-k-	-k- -q-
t͡ɬʰ-	kʰ-	x-	t͡ɬ-	sʸ-	c-	š-	ɬ-
-t͡ɬʰ-	-kʰ-	-x-	-t͡ɬ-	-δ-	-k-		-ɬ-
t͡ɬ'-	k'-		t͡ɬ'-	δʸ-	t-		
-t͡ɬ'-	-k'-		-t͡ɬ'-	-δʸ-	-ṯ(ṯ)-		
ʕ-	ʕ͡ħ-	Ø-	ʕ-	Ø-	Ø-	Ø-	Ø-
-ʕ-	-ʕ͡ħ-	-Ø-	-ʕ-	-Ø-	-Ø-	-Ø-	-Ø-
ħ-	ħ͡h-	x-	ħ-	Ø-	Ø-	Ø-	Ø-
-ħ-	-ħ͡h-	-x-	-ħ-	-Ø-	-Ø-	-Ø-	-Ø-
ʔ-	ʔ-	Ø-	ʔ-	Ø-	Ø-	Ø-	Ø-
-ʔ-	-ʔ-	-Ø-	-ʔ-	-Ø-	-Ø-	-Ø-	-Ø-
h-	h-	Ø-	h-	Ø-	Ø-	Ø-	Ø-
-h-	-h-	-Ø-	-h-	-Ø-	-Ø-	-Ø-	-Ø-
y-	y-	y-/Ø-	y-	y-	y-/Ø-		y-
-y-	-y-		-y-	-y-	-y-	-y-	-y-
w-	w-	w-	w-	w-	v-/Ø-		v-
-w-	-w-	-w-	-w-	-w-	-v-		-v-
m-	m-	m-	m-	m-	m-	m-	m-
-m-	-m-	-m-	-m-	-m-	-m-	-m-	-m-
n-	n-	n-	n-	n-	n-	n-	n-
-n-	-n-	-n-	-n-	-n-	-n-/-n̲-	-n-	-n-

Proto-Nostratic	Proto-IE	Proto-Kartvelian	Proto-Afrasian	Proto-Uralic	Proto-Dravidian	Proto-Altaic	Proto-Eskimo
nʸ-	n-		n-	nʸ-	ñ-	nʸ-	
-nʸ-	-n-		-n-	-nʸ-	-ṉ-	-nʸ-	
-ŋ-	-n-		-n-	-ŋ-	-ṉ-	-ŋ-	-ŋ-
l-	l-	l-	l-	l-	l-	l-	
-l-	-l-	-l-	-l-	-l-	-l-	-l-	-l-
-lʸ-	-l-	-l-	-l-	-lʸ-	l̤-	-lʸ-	
r-	-r-	-r-	-r-	r-			
-r-	-r-	-r-	-r-	-r-	-r-/-r̤-	-r-	-ʀ-
-rʸ-	-r-	-r-	-r-	-rʸ-	-r̤-	-rʸ-	

Bomhard also faults the vowel system reconstructed for Proto-Nostratic by Illič-Svityč and Dolgopolsky, though he feels that Dolgopolsky's system is a modest improvement over Illič-Svityč's.

Root Structure Patterning

According to Dolgopolsky, Proto-Nostratic roots (words) have the structure **CV* (auxiliary words and pronouns only), **CVCV*, **CVCCV*, **CV(C)CVCV*, and **CVCVCCV*.

Illič-Svityč agrees with Dolgopolsky (and Bomhard — see below) that grammatical words (pronominal stems and particles) were monosyllabic and had a **CV* structure, as in: **mi* object pronominal suffix; **ḳo* interrogative pronoun; **ja* relative pronoun. Nouns and verbs, however, were bisyllabic and had the following structures: (1) **CVCV* and (2) **CVCCV*. Illič-Svityč further notes: (1) consonant clusters could not occur in initial position and (2) only vowels could occur in final position (the last syllable of any root was always an open syllable). Dolgopolsky takes the same position, while Bomhard disagrees (see below). Illič-Svityč claims that the original root structure patterning was best preserved in Uralic, less so in Dravidian and Altaic. Final vowels were partially lost in Altaic and totally lost in Dravidian. Root structure patterning in Proto-Indo-European, Proto-Kartvelian, and Proto-Afrasian underwent additional changes. Finally, Illič-Svityč maintains that derived stems were typically created by way of suffixation (Bomhard agrees).

Bomhard's views on root structure patterning in Proto-Nostratic may be stated as follows:

1. There were no initial vowels in Proto-Nostratic. Therefore, every root began with a consonant.
2. Originally, there were no initial consonant clusters either. Consequently, every root began with one and only one consonant. Medial clusters were permitted, however.
3. Two basic root types existed: (A) **CV* and (B) **CVC*, where *C* = any non-syllabic, and *V* = any vowel. Permissible root forms coincided exactly with these two syllable types.

4. A stem could either be identical with a root or it could consist of a root plus a single derivational morpheme added as a suffix to the root: **CVC+CV-*. Any consonant could serve as a suffix.
5. A stem could thus assume any one of the following shapes: (A) **CV-*, (B) **CVC-*, (C) **CVC+CV-*, or (D) **CVC-CVC-*. As in Proto-Altaic, the undifferentiated stems were real words in themselves and could be used without additional suffixes or grammatical endings. However, when so used, a vowel had to be added to the stem (unless the stem already ended in a vowel or in a semivowel, nasal, or liquid), thus: (A) **CV- > *CV* (no change), (B) **CVC- > *CVC+***V**, (C) **CVC-CV- >* (no change), or (D) **CVC-CVC- > *CVC-CVC+***V**. Following Afrasian terminology, this vowel may be called a "terminal vowel" (TV). Not only did terminal vowels exist in Proto-Afrasian, they were also found in Dravidian, where they are called "enunciative vowels". As in Proto-Dravidian, the terminal vowel was only required in stems ending in obstruents, which could not occur in final position.

Bomhard notes that the original root structure patterning was maintained longer in Proto-Dravidian and Proto-Altaic than in the other branches, while the patterning found Proto-Indo-European, Proto-Kartvelian, and Proto-Afrasian is based upon slightly later developments. Bomhard claims that the root structure constraints found in Proto-Indo-European were an innovation, while the rule requiring that all words end in a vowel in Proto-Uralic was also an innovation and arose from the incorporation of the so-called "terminal vowel" into the stem. Bomhard further notes that reduplication was a widespread phenomenon.

On the basis of the evidence of Proto-Indo-European, Proto-Kartvelian, Proto-Afrasian, Proto-Dravidian, and Proto-Altaic, Bomhard assumes that there were three fundamental stem types in Proto-Nostratic: (A) verbal stems, (B) nominal/adjectival stems, and (C) pronominal and indeclinable stems. Some stems were exclusively nominal. In the majority of cases, however, both verbal stems and nominal stems could be built from the same root. In Proto-Nostratic, only pronominal and indeclinable stems could end in a vowel and had the structure **CV*; this is in agreement with Illič-Svityč's and Dolgopolsky's views. Verbal and nominal stems, on the other hand, had to end in a consonant, though, as noted above, when the undifferentiated stems were used as real words in themselves, a "terminal vowel" had to be added to the stem (but only when the stem ended in an obstruent). The terminal vowels were morphologically significant. Illič-Svityč and Dolgopolsky, on the other hand, do not recognize terminal vowels. Instead, they reconstruct all stem types as ending in a vowel. Finally, Bomhard claims that adjectives did not exist as an independent grammatical category in Proto-Nostratic.

Morphology

Illič-Svityč never published his views on Nostratic morphology during his lifetime. However, his notes were gathered together and published by Vladimir Dybo in 2004 in the proceedings of the Pécs Centennial Conference, edited by Irén Hegedűs and Paul Sidwell. According to Illič-Svityč, Proto-Nostratic was an inflected language, apparently of the accusative type. It had both nouns and adjectives. Nominal declension was only available in the singular.

Adjectives were declined only if they were substantivized and used independently. Illič-Svityč reconstructs the nominal paradigm as follows:

1. Nominative-accusative: **-Ø* (zero); used for subject and unmarked object;
2. Marked object: **-mʌ*; used if the object had to be topicalized in the sentence if the possibility existed for an ambiguous interpretation of the phrase and if a definite object was indicated;
3. Genitive (connective): **-n*; possessive, etc.;
4. Instrumental: **-tʌ*;
5. Local cases: lative **-ḳa*; ablative **-da*; and essive (locative) **-n*.

Plurality was primarily indicated by a special marker: **-t*. Illič-Svityč also reconstructs an oblique plural marker **-j*, though he notes that this is less certain.

Illič-Svityč reconstructs the following types of personal pronouns:

1. Independent pronouns — specifically for indicating the pronominal subject;
2. Forms of the subject standing by a verb, primarily in a position preceding a noun;
3. Forms of the direct object of a verb, primarily in a position preceding a noun after the form of the subject;
4. Possessive forms next to nouns, primarily in a position after a noun.

Only the first and second person singular and plural pronouns were represented in these four types.

Illič-Svityč reconstructs the following stems for these types:

1. Independent pronouns; these stems could be extended by a facultative emphatic element **-na*:

   1st person singular: **ʌke-na*;
   2nd person singular: **ṭʌ-na*;
   1st person plural: **naHe-na*;
   2nd person plural: ?
2. Forms of the subject of verbs:

   1st singular: **a-*;
   2nd singular: **ta-*;
   1st plural: **na-*;
   2nd plural: ?

3. Forms of the direct object:

   1st singular: **mi-*;
   2nd singular: **k-*;

1st plural: ?
2nd plural: ?

4. Possessive forms:

1st singular: **mi-*;
2nd singular: **si-*;
1st plural: **mʌn*;
2nd plural: **sʌn*.

Illič-Svityč also posits the following demonstrative stems (fulfilling the function of 3rd person pronouns): **ta-*, **šä-*, **mu-*; the following interrogative stems: **ḳo* 'who?', **mi* 'what?'; and the following interrogative-relative stems: **ja*, **na* (?).

Illič-Svityč's views on verb morphology were not as well developed. He reconstructs an imperative as well as the following two opposing verb categories: (1) The first designated the action itself (transferred to the object in the case of transitive verbs). This was used with the subject pronoun and (in the case of transitive verbs) with the object pronoun. Here, the nominal direct object was the marked form, and the verb stem coincided with the infinitive. (2) The other verb form was a derived noun ending in **-a*. It indicated the state of the subject. If the verb were transitive, it contained only the prefix of the subject, and, in this case, the object noun could not be marked and thus always appeared in the subjective-objective case. Finally, Illič-Svityč suggests that there existed a temporal (or aspectual) distinction between these two basic verb categories, which was probably realized with the help of deictic particles of pronominal origin.

Dolgopolsky's views on Proto-Nostratic morphology differ from those of Illič-Svityč. According to Dolgopolsky, Proto-Nostratic was a highly analytic language. Dolgopolsky notes that Illič-Svityč, although recognizing the analytical status of many grammatical elements in Proto-Nostratic, still believed that some of them were agglutinated suffixes, specifically, the marker of oblique cases **-n* (= Dolgopolsky's **nu* 'of, from'), the formative of marked accusative **-m[ʌ]* (= Dolgopolsky's **mA*), the plural marker **-NA* (= Dolgopolsky's **n̄[ä]*, used to mark collectivity and plurality), and several others. Dolgopolsky points out that Illič-Svityč's position is unacceptable inasmuch as the Proto-Nostratic formants in question still preserve the following traces of their former analytic status: (1) mobility within a sentence (a feature of separate words rather than suffixes); (2) the fact that several particles are still analytic in some of the Nostratic descendant languages; and (3) the fact that Proto-Nostratic etyma with grammatical and derivational function are sometimes identical with "autosemantic words".

Though Bomhard mostly agrees with Dolgopolsky that Proto-Nostratic was originally an analytic language, he maintains that, in its latest stage of development, several of the particles were beginning to develop into bound relational markers.

Bomhard devotes two chapters in his book to Proto-Nostratic morphology. In the first chapter (Chapter 16), he presents the evidence, while, in the following chapter (Chapter 17), he attempts a systematic reconstruction of Proto-Nostratic morphology.

Bomhard notes that the assumptions we make about the morphological and syntactical structure of a given proto-language profoundly affect the reconstructions that we propose.

According to Bomhard, Proto-Nostratic was an active language. Now, active languages exhibit specific characteristics that set them apart from other morphological types. Therefore, the reconstructions that Bomhard posits conform with an active structure. However, Bomhard stresses that reconstructions should never be driven by theory alone. Rather, they must be fully consistent with the supporting data. Moreover, not only must our reconstructions be consistent with the supporting data, they must be consistent from a typological perspective as well, and they must be able to account for later developments in the descendant languages in as straightforward a manner as possible, without recourse to ad hoc rules. When reconstructions are driven by theory alone, the results can be disastrous.

Several scholars have recently presented persuasive arguments in favor of reconstructing an early phase of Proto-Indo-European as an active language. Proto-Afrasian is also assumed to have been an active language. In active languages, subjects of both transitive and intransitive verbs, when they are agents semantically, are treated identically for grammatical purposes, while non-agent subjects and direct objects are treated differently. An "agent" may be defined as the entity responsible for a particular action or the entity perceived to be the cause of an action.

As in Proto-Dravidian, Bomhard reconstructs *formative vowels* for Proto-Nostratic. He notes that it is curious that the formative vowel can take different shapes in Proto-Dravidian: **a*, **i*, or **u*. This seems to indicate to him that the different formative vowels must have had some sort of morphological significance at one point in time, even though this distinction has been lost in Dravidian. Not only must the formative vowels have had morphological significance, it is even probable that they had different significance depending upon whether a nominal or verbal stem was involved.

For verbal stems, the formative vowels may have been aspect markers, as follows: **a* marked imperfective, **i* marked perfective, and **u* marked subordinate.

For nominal stems, the situation is a bit more complicated. Bomhard reconstructs the following patterning for the earliest period of development in Proto-Nostratic: **-i*/**-u* was used to mark the subject in active constructions, while **-a* was used to mark the direct object in active constructions as well as the subject in stative constructions. **-a* was also used to mark the so-called "*status indeterminatus*".

According to Bomhard, the above patterning became disrupted in the latest stage of development in the Nostratic parent language, though it may have survived into Proto-Afrasian. In later Proto-Nostratic, the relational markers **-ma* and **-na* came to be used to mark the direct object in active constructions as well as the subject in stative constructions. Eventually, these relational markers became the primary means of marking the direct object in active constructions or the subject in stative constructions, with the result that the older patterning became disrupted. Thus, in the latest stage of the Nostratic parent language, we find the following patterning:

1. **-i*/**-u*: used to mark the subject in active constructions:

   (A) *CVC + i/u
   (B) *CVC + i/u + CV_{DF}
   (C) *CVC-CVC + i/u

2. **-a* ~ **-ma/*-na*: used to mark the direct object in active constructions as well as the subject in stative constructions:

(A) *CVC + a	plus **-ma/*-na*: *CVC + a + ma/na
(B) *CVC + a + CV_{DF}	plus **-ma/*-na*: *CVC + a + $C(V)_{DF}$ + ma/na
(C) *CVC-CVC + a	plus **-ma/*-na*: *CVC-CVC + a + ma/na

Abbreviations: DF = derivational formative (see above under Root Structure Patterning).

**-ma/*-na* was the first case form (bound relational marker) to develop in Proto-Nostratic. The second was the genitive (in the sense 'belonging to') in **-nu*. Indeed, these are the only two bound relational markers that can be confidently reconstructed for the latest period of Proto-Nostratic. Finally, it seems likely that unextended **-a* remained as the indicator of the *status indeterminatus*.

Bomhard reconstructs the following pronominal, deictic, and anaphoric stems for Proto-Nostratic.

First Person Stems:

First person singular (active): **mi*
First person plural (inclusive, active): **ma*
First person (stative): **kʰa*
First person (stative): **Ha*
First person singular: **na*
First person plural (exclusive, active): **na*
First person (postnominal possessive/preverbal agentive): **ʔiya*

Second Person Stems:

Second person (active): **tʰi* (~ ** tʰa*)
Second person: **si* (perhaps originally possessive, as assumed by Illič-Svityč)
Second person: **ni*

Anaphoric and Deictic Stems:

Pronominal base of unclear deictic function: **-gi/*-ge*
Deictic particle: (A) **ʔa-/*ʔə-* (distant), (B) **ʔi-/*ʔe-* (proximate), and (C) **ʔu-/*ʔo-* (intermediate)
Deictic particle: (A) **kʰa-/*kʰə-* (proximate), (B) **kʰu-/*kʰo-* (distant), and (C) **kʰi-/*kʰe-* (intermediate)
Deictic particle: (A) **tʰa-/*tʰə-* (proximate), (B) **tʰu-/*tʰo-* (distant), and (C) **tʰi-/*tʰe-* (intermediate)
Deictic particle: **ša-/*šə-*

Anaphoric pronoun stem: **si-/*se-*
Anaphoric pronoun stem: **na-, *ni-*
Deictic particle: **$t^{yh}a$-* 'that over there, that yonder (not very far)'

Interrogative, Relative, and Indefinite Stems:

Relative: **$k^{wh}i$-/*$k^{wh}e$-*; interrogative: **$k^{wh}a$-/*$k^{wh}ə$-*
Interrogative-relative stem: **ʔay-, *ʔya-*
Interrogative: **mi-*; relative: **ma-*
Interrogative-relative: **na*
Indefinite: **ma-, *mi-, *mu-*
Indefinite: **$d^{y}i$-/*$d^{y}e$-* 'this one, that one'

According to Bomhard, the overall structure of nominals (nouns and adjectives) was as follows:

Root + formative vowel (+ derivational suffix)
(+ relational marker) (+ number marker)

A stem could consist of the unextended root or the root extended by a single derivational suffix (preceded, as indicated above, by a formative vowel). As has already been noted, it is necessary to recognize two distinct periods of development in Proto-Nostratic. In the earliest phase of development, the relational markers listed below were free relational morphemes (postpositional particles). In later Proto-Nostratic, however, at least two of them were well on their way to becoming bound relational morphemes (case suffixes).

As already noted, only the following two bound relational markers (case suffixes) can be confidently reconstructed for the latest period of Proto-Nostratic: (A) direct object **-ma, *-na* and (B) genitive **-nu*. Other case relationships were expressed by postpositions (see below for a complete list), some of which developed into bound case morphemes in the individual daughter languages.

According to Bomhard, adjectives did not exist as a separate grammatical category in Proto-Nostratic. They were differentiated from nouns mainly by syntactical means — "adjectives" preceded the nouns they modified. Moreover, they did not agree with the head noun in number or gender.

Bomhard reconstructs the following relational markers, dual and plural markers, and derivational suffixes for Proto-Nostratic:

Relational markers:

Direct object: **-ma*
Direct object: **-na*
Possessive: **-nu* 'belonging to'
Possessive: **-lV* 'belonging to'

Dative: **-na* 'to, for'
Directive: **-kʰa* 'direction to or towards, motion to or towards'
Directive(-locative): **-ri* 'direction to or towards, motion to or towards (?)'
Locative: **-ni* 'the place in, on, or at which something exists or occurs'
Locative, instrumental-comitative: **-ma* 'in, from, with'
Locative: **-bi* 'in addition to, together with'
Locative: **-i* 'near to, near by' (?)
Comitative-locative: **-da* 'together with'
Oblique: **-tʰa*

Dual and plural markers:

Dual: **kʰi(-nV)*
Plural: **-tʰa*
Plural: **-ri*
Plural: **-kʰu*
Plural (Eurasiatic only): **-sV*
Plural/collective: **-la*
Plural: **-nV*

Note: plurality could also be expressed by reduplication of the root.

Derivational suffixes:

Nominalizer: **-ri/*-re*
Nominalizer: **-ma*
Nominalizer: **-ya*
Nominalizer: **-tʰa*
Nominalizer: **-na*
Nominalizer: **-la*
Nominalizer: **-kʰa*
Nominalizer: **-k'a*

According to Bomhard, verbs fell into two types of construction in Proto-Nostratic: (1) active and (2) stative. It appears that Illič-Svityč was developing a similar view, though, as noted above, he did not work out a systematic reconstruction of Proto-Nostratic verb morphology. In active constructions, which usually involved transitive verbs, the grammatical subject of the verb represented the agent performing the action, and the direct object represented the patient, or recipient, of the action. Stative constructions, on the other hand, expressed a state of affairs, rather than an event. According to Bomhard, verbs expressed aspectual contrasts rather than temporal contrasts. Tense relates the time of the situation referred to to some other time, usually to the moment of speaking, while aspect marks the duration or type of temporal activity denoted by the verb. Bomhard sets up two aspects for Proto-Nostratic: (A) perfective

(past) and (B) imperfective (non-past). Bomhard also reconstructs the following moods: (A) indicative; (B) imperative; (C) conditional; (D) hortatory-precative; (E) inchoative; and (F) prohibitive. There was also a causative construction.

The overall structure of verbs was as follows:

Root + formative vowel (+ derivational suffix)
(+ mood marker) (+ person marker) (+ number marker)

A stem could consist of the unextended root or the root extended by a single derivational suffix (preceded, as indicated above, by a formative vowel). The position of the number marker seems to have been flexible — it could also be placed before the person marker. Gender was not marked. There were no prefixes in Proto-Nostratic.

Stative verbs were indifferent to number and, therefore, had no plural forms. They also had a special set of person markers different from those of active verbs:

	Active person markers		Stative person markers
	Singular	Plural	
1p.	**mi*	**ma* (inclusive) (+ plural marker)	**k^ha*
	**na*	**na* (exclusive) (+ plural marker)	**Ha*
2p.	**t^hi*	**t^hi* (+ plural marker)	**t^hi*
	**si*		
	**ni*		
3p.	**ša-/*šə-*	**ša-/*šə-* (+ plural marker)	**Ø*
	**na-, *ni-*	**na-, *ni-* (+ plural marker)	

Morphologically, verbs could be either finite or non-finite. Finite forms could be marked for aspect, mood, person, and number, but not for gender or tense. Non-finite forms exhibited nominal inflection. In unmarked word order, the verb occupied the end position of a clause.

The following non-finite verb forms are widespread enough in the Nostratic daughter languages to guarantee their common origin:

Participle: **-na*
Participle: **-t^ha*
Gerundive-participle: **-la*

Bomhard also reconstructs the following mood markers and other finite verb forms:

Mood markers:

Imperative: **-k^ha, *-k^hi, *-k^hu*
Conditional: **-ba*
Hortatory-precative: **-li*

Inchoative: **-na*

Note: the bare stem could also serve as imperative.

Other finite verb forms:

Causative: **-sV*

Bomhard also reconstructs the following negative/prohibitive particles and indeclinables for Proto-Nostratic:

Negative particles: **na, *ni, *nu*
Prohibitive particle: **ma(ʔ)*
Negative particle: **ʔal-* (~ **ʔəl-*)
Negative particle: **li* (~ **le*) (?)
Negative particle: **ʔe*
Post-positional intensifying and conjoining particle: **$k^{wh}a$-* (~ **$k^{wh}ə$-*)
Particle: **$k^{wh}ay$-* 'when, as, though, also'
Particle: **$ħar^{y}$-* 'or; with, and; then, therefore'
Particle: **ʔin-* (~ **ʔen-*), **(-)ni* 'in, into, towards, besides, moreover'
Sentence particle: **wa* (~ **wə*) 'and, also, but; like, as'
Coordinating conjunction: **ʔaw-*, **ʔwa-* (~ **ʔwə-*) 'or'

Note: The *CVC-* root structure patterning of some of these forms points to their ultimate nominal or verbal origin. For example, the negative particle **ʔal-* (~ **ʔəl-*) must ultimately have been a negative verb stem meaning 'to be not so-and-so', as in its Dravidian derivatives, while **ʔin-* (~ **ʔen-*), **(-)ni* was originally a nominal stem meaning 'place, location' (Dolgopolsky assumes the same origin for this form).

Syntax

Both Dolgopolsky and Bomhard agree that Proto-Nostratic syntax was head-final, or left-branching, that is, dependents preceded their heads according to the so-called "rectum-regens rule". In other words, "adverbs" preceded verbs, "adjectives" preceded nouns, and auxiliaries followed the main verb, though it must be emphasized here that, at least according to Bomhard, adjectives did not exist as an independent grammatical category in Proto-Nostratic. The unmarked syntactical order was Subject + Object + Verb (SOV).

Vocabulary

In an article published in 1965, Illič-Svityč listed 607 possible common Nostratic roots, but only 378 have been published to date in his posthumous comparative Nostratic dictionary (1971—). Since the early 1960s, Dolgopolsky has been gathering material for a new Nostratic dictionary and currently has material to support approximately 3,000 common Nostratic roots. His *Nostratic Dictionary* has just (2008) been made available online by the McDonald Institute at: http://www.dspace.cam.ac.uk/handle/1810/196512. In the joint monograph by Bomhard and Kerns (1994), 601 common Nostratic roots were listed, and additional Nostratic roots were proposed by Bomhard in several subsequent works. Volume 2 of Bomhard's most recent work (2008) is devoted to comparative vocabulary. In it, Bomhard supplies a great deal of material to support the reconstruction of 843 common Nostratic roots.

There are many common Nostratic etymologies in the works of Bomhard, Illič-Svityč, and Dolgopolsky, though the fact that Bomhard sets up a different set of sound correspondences means that he proposes etymologies that would not be acceptable to Dolgopolsky and Illič-Svityč. At the same time, a number of the etymologies proposed by these two scholars are rejected by Bomhard, not only because the correspondences on which they are based are not acceptable to him but also because of semantic problems.

Notable among the lexical items uncovered by Illič-Svityč, Dolgopolsky, and Bomhard is a solid core of common pronominal stems. These are listed above in the section dealing with morphology. These pronominal stems have particular importance, since pronouns, being among the most stable elements of a language, are a particularly strong indicator of genetic relationship.

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A Note on the Pre-Protolinguistic Background of Proto-Uralic Homonyms

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Homonymy is the full formal coincidence of two (or more) word-forms between which semantic connection cannot be established. Homonymy occurs in natural languages and its presence is often difficult to explain for lack of sufficient diachronic information. Sometimes polysemous words are mistakenly interpreted as homonyms because the historical relationship between the identical forms goes unobserved. When the semantic relationship of two historically polysemous (i.e. related) forms becomes obscured in the course of time, speakers' mental representation will treat such cases as homonymy (Győri 2002: 154). Comparative reconstruction sometimes yields homonymous forms. It is not surprising that a reconstructed protolanguage should also have homonyms because a reconstructed protolanguage is hypothetically a language form that – in some form and at some stage – must have operated in the same contexts as a natural language. In the case of a reconstructed protolanguage we can speak about homonymy if two or more etyma are reconstructed with identical sound shape but with totally different semantic content, so their etymological connection can be excluded with certainty. In the case of the reconstructed Uralic lexicon it is peculiar that we can see a heightened frequency of (apparent) homonymy, especially multiple homonymy (more than 2 etyma having the same sound shape).

How is it possible to account for this high degree of homonymy in Proto-Uralic? In a phonotactic investigation of the reconstructed Uralic protolanguage Marianne Bakró-Nagy accomplished a very thorough examination of the frequency distributions and combinability of PU phonemes (Bakró-Nagy 1992). She established the hierarchy of PU stops and came to the conclusion that stops are the most freely combinable consonants in the protolanguage: *k* takes the first place, *p* comes second, and *t* is the fourth in the hierarchy (Bakró-Nagy 1992: 31). Because of this free combinability the stops *p, t, k* were especially loaded, so almost half (45.5%) of the words with initial consonants had one of these three stops word initially (ibid. p. 43). One of the consequences of the outstanding loadedness of these stops is that we can also find a relatively frequent occurrence of homonyms in PU etyma, e.g. there are nine entries in UEW with the form **kur3* (UEW pp. 216-222):

1.	***kurз***[1] 'Körper' **U**
2.	***kurз***[2] 'Gebüsch, dichter Wald' **U**
3.	***kurз***[3] 'Vertiefung, von Wasser ausgegrabener Hohlweg, Paß zwischen zwei Bergabhängen' **FU**
4.	***kurз***[4] 'Messer' **U**
5.	***kurз***[5] (*korз*) 'Korb, Faß aus Rinde' **U**
6.	***kurз***[6] 'krumm, schräg, schief; krumm, schräg, schief machen' **U**
7.	***kurз***[7] 'Zorn; zürnen' **FU**
8.	***kurз***[8] 'graben' **FU**
9.	*kurз*[9] (? *kara-*) 'graben' FU

Table 1. The PU homonym group **kurз*[1-9] (*з* in non-initial syllable = *a/ä/e*, UEW: x)

Even if - for reasons of synchronicity - we drop the four etyma reconstructed for PFU, we still have 5 PU etyma suspect of homonymy: *kurз*[1] 'Körper', *kurз*[2] 'Gebüsch, dichter Wald', *kurз*[4] 'Messer', *kurз*[5] (*korз*) 'Korb, Faβ aus Rinde', *kurз*[6] 'krumm; krümmen'. As we can see from these examples, one of the reasons why the Uralic Etymological Dictionary (UEW) has a rich inventory of apparently homonymic groups is the unfortunate circumstance that the vocalism of the second syllable in PU etyma is often ambiguous. Since the sign *з* in non-initial syllables is used in UEW as a cover symbol for either *a*, *ä* or *e*, we can posit three underlying protoforms that may actually have been different: ***kura* ↔ ***kurä* ↔ ***kure*. But the evidence available for us on the basis of the surviving daughter languages does not allow for this formal separation. If we could establish this three-way distinction in the second vowel that would still permit that at least one homonymic pair must have existed in this group, plus as soon as we could establish that *з* = *a* in one of the forms **kurз*[1-9], we would have a homonymic pair with PU ***kura*** 'Reif, feiner Schnee' (UEW p. 215), or if we could establish that *з* = *a*, then another homonymic pair emerges with PU ***kure-*** 'binden, schnuren' (UEW p. 215). So even the identification of the indefinite vowel *з* would lead to conflict and bring about new homonymic pairs.

What could be the (pre-protolinguistic) motivation of this high level of homonymy? If we take a further step and go deeper in linguistic (pre)history it becomes possible to refine the explanation of this peculiar Proto-Uralic situation. If we consider the Eurasian parallels of the reconstructed Uralic etyma it becomes obvious why apparent homonyms are so frequent in PU. The Nostratic hypothesis offers to shed light on the multiple sources of PU *p, t, k*:

PNosztr.	PU	PA	PD	PIE	PK	PAA
p-	p-	p-	p-	p-	p-/p-	p-
p-		p-	p- ~ v-	p- ~ b-	p- ~ b-	p_1
b-		b-	p-	b^h	b-	b-
t-	t-	t^{ϵ}-	t-	t-	t-	t- / (t-)
t-		t-	t-	d-	t-	t-
d-		d-	t-	d^h	d-	d-
k-	k-	k^{ϵ}-	k-	k/ǩ/k^w-	k-	q- / (k-)
k-		k-	k-	g/ĝ/g^w-	k-	k-
g-		g-	k-	g^h/$\hat{g}^h$/g^{wh}-	g-	g-

Table 2: The merger of Nostratic initial stops in Proto-Uralic (Dybo 1990: 168)

In the pre-Proto-Uralic period processes of phonological mergers of stops in initial position had lead to the increase in the frequency of occurrence for PU *p, t, k*. The loadedness of these stops naturally leads to increased homonymy. Such mergers were peculiar to PU, so in the other language families we cannot expect the same heightened level of homonymy to emerge.

Though Nostratic reconstructions can neither be expected to clarify the vocalism of the second syllable in these PU etyma, the examples below will illustrate that the apparent homonymy derives from the coalescence of initial consonants (in this case the multiple sources of PU *k*-):

PU *kurɜ*[2] 'Gebüsch, dichter Wald' (in the Finno-Ugric branch with a meaning 'coniferous woods' < PN **gara* 'thorny branch, pine-needle' (Illič-Szvityč 1971: 226, No.78), with reflexes in Indo-European, Altaic and Dravidian.

PU *kurɜ*[4] 'Messer' < PN **q̇urV* 'edge; to cut' (Illič-Szvityč 1976: 104, No. 344): with reflexes in Afroasiatic, Altaic and Dravidian.

PU *kurɜ*[5] (*korɜ*) 'Korb, Faß aus Rinde' < PN * *ḴurV* 'to plait, bind' [*Ḳ* = a voiced or voiceless glottalised stop] (Illič-Svityč 1971: 359-360, No. 236): with reflexes in Indo-European, Altaic and Dravidian.

Though *kurɜ*[3] 'Vertiefung, von Wasser ausgegrabener Hohlweg, Paß zwischen zwei Bergabhängen' is reconstructed for the PFU level only because Samoyedic reflexes have not been found, it is not impossible that *kurɜ*[3] might derive from a PN **guru* 'flow, pour' (for more details see Hegedűs 2004: 126-127).

The occurrence of possible homonyms is frequent not only in the case of PU etyma with an initial velar stop but also in the case of the bilabial stop *p*-. If we include the less certain, questionable Proto-Uralic forms (following the typographical convention of UEW the most reliable reconstructions are printed in boldface), the total number of Uralic etyma where $C_I = k$ is 102, among them we can find 9 candidates for homonymy. If we consider only the Proto-Uralic etyma and ignore the PFU forms, 10 cases of possible homonymy can be found in the inventory of 79 reconstructed word-forms with $C_I = p$. Of these ten cases 4 are sure to make up homonymous pairs, nos. 4, 5, 7, and 10:

1.	***pačkə***^{1} '?(hin)durch; durchgehen' U	*pačkə-*^{2} (*počkə-*) 'flechten, zwirnen' **FP**, ?U
2.	*pačə*^{1} 'bunt; bunt machen' ?U	*pačə-*^{2} (*počə-*) 'auftrennen' U
3.	*parə*^{1}, *porə* (*parwa*, *porwa*) U	***parə***$^{-2}$ 'schneiden, schaben, aushöhlen' **U**
4.	***poča***^{1} 'Rentier(kalb)' **FU**, ?U	*poča-*^{1} 'naß, feucht werden' **U**
5.	***počka***^{1} 'Schenkel' U	***počka***^{2} 'Zugriemen (zum Schlitten)' U
6.	*pučə*^{1} 'Kahn, Boot, Schiff' **FP**, ?U	*pučə-*^{3} '(aus)schütten, (aus)gießen' U
7.	***puna-***^{1} 'Haar' **FU**	***puna-***^{2} 'spinnen, flechten' **U**
8.	*purkə*^{1} 'Schneegestöber; stöbern' **FP**, ?U	***purkə***^{2} (***pukrə***) 'Zeit' **FU**, ?U
9.	*purə*^{1} 'Hinterraum, Hinterteil' **Ug.**, ?U	***purə***^{2} 'Rogen' **U**
10.	***puwe***^{1} 'Baum, Holz' **U**	***puwe-***^{2} (***puŋə-***) 'blasen' **U**

Table 3: Homonyms in Proto-Uralic (Proto-Finno-Ugric) reconstructions with initial *p-*

If we consider the proportions for the homorganic nasal stop, $C_1 = m$ in 66 reconstructed etyma, i.e. the database is 17% smaller than in the case of the 79 etyma with $C_1 = p$. If the occurrence of homonyms is random, we would expect 8 cases of homonymy involving *m* in initial position. In fact we encounter only 3 such cases in UEW.

The first one appears to be certainly a homonymous pair:

1. *mura*^{1} 'Sumpfbeere' (UEW: 287)
   mura^{3} 'Stück, Krümchen; zerbröcken, zerbrechen' (UEW: 288)

In the second group the vowels in both syllables are reconstructed with a high degree of ambiguity, what reduces the probability that these words may represent homonyms. But in the other two cases it is much less, or not at all, probable that we are dealing with homonymy:

2. *mərə*^{1} 'mit Sträuchern bewachsener Hügel' (UEW: 291)
   mərə^{2} 'Knollen, Knorren' (UEW: 292)
   mərə^{3} 'etwas Erhabenes, Hervorragendes, Ausgebauchtes (irg. Körperteil)' (UEW: 293)
   mərə-^{4} 'zurückhalten' (UEW: 293-294)

While in the third case it is much less, or not at all, probable that we are dealing with homonymy:

3. *mə*^{1} 'ich' (UEW: 294)
   mə^{2} 'wir' (UEW: 294-295)

In this third case the problem is that not only the quality of the vowels is highly uncertain but the funcion of the personal pronouns is so crucial that homonymy would cause communication problems, so an undesirable situation like this would soon lead to solving the homonymic clash by replacing one of the forms (probably that of the 1st person plural). A well-known personal pronoun replacement is attested in the history of English (Old English *hīe* 'they' was replaced by the Scandinavian loanword *þeir*.)

The distribution of apparent homonymous forms shows that homonymy occurs less frequently in words with an initial nasal stop than elsewhere (i.e. in words with a stop other than nasals). This seems to support the explanation that the increased frequency of non-nasal stops is rooted in pre-Proto-Uralic merger processes that did not affect nasal stops.

As a future step of investigation it would be interesting to test the above explanation of the high degree of homonymy visible in Proto-Uralic reconstruction against the situation in Altaic and Dravidian. Since the merger of initial stops suggested for the pre-Proto-Uralic stage by Nostratic reconstructions did not operate in the prehistory of Altaic and Uralic, it is expected that the inventory of reconstructed etyma would not have such a high proportion of apparent homonyms in the case of Proto-Altaic and Proto-Dravidian.

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Numerals in Arctic Languages

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0. The purpose of the present study is to analyze the systems of numerals in three 'Arctic' language families, Eskaleutan, Chukcho-Kamchatkan and Yukaghir, from the point of view of internal stucture, semantic motivation and external relations.

1. Naukan, the Siberian Eskimo idiom, is used on the coast of the Chukotka Peninsula. In the southwest of the peninsula and on St. Lawrence Island the close dialect Chaplino is spoken. The archaic Sirenik language was used on the south coast of Chukotka till 1997. The Cape of the Prince of Wales represents the westernmost point of Alaska and also of North America, only 82 km from the Cape of Dežnev, the easternmost point of Asia. In the space between them there are Big Diomede Island (Russia) and Little Diomede Island (USA), separated by the Russian-American border [1]. On Big Diomede Island the dialect *imaqliq* is spoken, on Little Diomede Island *iŋaliq*. The Mackenzie River is the longest Canadian river, whose mouth is situated east of the Canadian border with Alaska. The Kazan River flows through the Canadian province Nunavut and empties into Baker Lake, whose outlet is into Hudson Bay. Simpson Peninsula is a small peninsula between two bigger ones: Boothia Peninsula in the west and Melville Peninsula in the east. The latter is located between Hudson Bay and Baffin Island. Thule is a locality in northern Greenland. Bering Island is the biggest of the Komandor Archipelago, belonging to Russia. The Aleuts, who inhabited it only since the 19th century, came from Atka Island, which is a part of the Aleut Archipelago (USA), as is Attu Island, which was a starting point for the habitation of Mednyj [= 'Copper'] Island.

Table 1a: Numerals in Eskimo languages

	Sirenik	Chaplino = Uŋazigmit	Naukan = Nyvuqagmit	Diomede Is. - Cape Prince of Wales	Southwest Alaskan	Mackenzie River	Upper Kazan R.
1	*atyɣysχχ*	*atasiq*	*atasiq*	*atāūsiq*	*atauceq*	*ataociq*	*atauhɛq*
2	*malyug*	*malyuk*	*malyuk*	*mayluk*	*malruk*	*małəroq*	*malruk*
3	*piŋyjug*	*piŋajut*	*piŋajut*	*pinasjut*	*piŋŋaijun*	*piŋacut*	*piŋadzut*
4	*sitymij*	*stamat*	*stamat*	*sitamat*	*stamin*	*citamat*	*hitamāt*
5	*tasimiŋyj*	*tałimat*	*tałimat*	*talimat*	*tałlimin*	*tałłémat*	*tādlimāt*
6a	*iŋlyx*						
6b		*ayvinlyk*	*ayvinlyk*	*ayvinilit*	*arFinligin*	*arvénèləpit*	*arvinrān*
7a	*malyugnyŋ iŋlykylyχχ*				*malrunlingin*		
7b		*mayrayvinlyk*	*malyugnyŋ ayvinylyk*	*mayljugnyŋ ayvinilit*			*arvinili·t malruk*
7c						*arvénèləpit-aipak*	
8a	*piŋyjugnyŋ iŋlykylyχχ*	*piŋajunyŋ-iŋljulyk*			*piŋŋaijunligin*		
8b			*piŋajunyŋ-ayvinylyk*	*pinasjunyŋ ayvinilit*		*piŋacunik-arvénèləpit*	*arvinili·t piŋadzut*
9a	*sitymynyŋ iŋlykylyχχ*	*stamanyŋ-iŋljulyk*					
9b			*qulŋuyut-ŋilŋuq*	*quliŋutelet*	*qolnnunrata*	*qolinilloat*	
9c						*arvénèləpit-citamat*	*arvinili·t hitamāt*
10a	*tasixta*						

10b		*qulja*	*quly*	*qulit*	*qoln*	*qolit*	
10c							*arvinili·t tādlimāt*

Table 1b: Numerals in Eskimo languages

	Simpson Peninsula	Melville Peninsula	Thule	West Greenland	East Greenland	Etymological comments
1	*atauzɛq*	*atausiq*	*atausɛq*	*ata·^{w}seq*	*ata·^{w}ser*	**ataRuciR* 1, cf. **atə(ði)-* be the same, Al *at-* even, straigth position (CED 50-51)
2	*maLruk*	*maRuŋ*	*mardluk*	*marłuk*	*martik*	**malRuγ* 2 : *maliγ-* follow (CED 186-87; Th 21) SibEsk **mal-Ru-* 2 (M 234); Th 20-21: **-Ruγ* is a participle-like ending in dual
3	*piŋašut*	*piŋasun*	*piŋašut*	*piŋasut*	*piŋasin*	**piŋayut* 3 (CED 263); Th 22-23: Gr *piŋuttaq*, *piŋo* knoll on a ground, Lab *pingalo* outgrowth on a tree or pEsk **piŋ-* up-slope; Al *hiŋa* right there (CED 471); **-yut* is the pl. of the participle in *-ioq* in Gr
4	*šitamān*	*tisamān*	*sisamāt*	*sisamat*	*ci^{j}amat*	**citamat* 4 (CED 86); cf. **cituk* (CED 87) = SibEsk **citu-* fingernail / claw (M 232)
5	*tadlimān*	*tādlimān*	*tādlimāt*	*tałłimat*	*tättimat*	**tałłimat* 5 (CED 328) > AmEsk **tällima-* 5 (M 224), SibEsk **talγi-ma-* 5 (M 232) cf. pEsk **tałiR* arm (CED 328) = AmEsk **täli-* hand (M 221); Al *talRi-ɦ* branch, *tałiɦ* knot in the wood (CED 328; B 100), but *tulaŋ* arm (Th 44)
6a			*igluane*			cf. pEsk **iŋlu* other of pair (CED 136), i.e. [one of] other of pair [of hands]
6b	*arvinɛqun*	*arfinɛqpun*		*arFiniłlit*	*arpernaq*	**aRvin(ə)ləγ* 6 : **aRviR-* to cross over, **aRvaγ* edge of hand (CED 46, 45; Th 18), i.e. [1] over [5/hand]
7a						2 of other of pair [of hands]
7b	*arvinɛqun maLrunik*	*arfinɛqpun maRuŋiŋ*	*igluane mardluk*	*arFineq marłuk*	*arpernar martik*	2 over [5/hand]
7c						cf. pEsk **aippaR* companion, second, other of two (CED 9), i.e. second over [5/hand]
8a			*igluane piŋašut*			3 of other of pair [of hands]
8b	*arvinɛqun piŋašunik*	*arfinɛqpun piŋasuŋiŋ*		*arFineq piŋasut*	*arpernar piŋasin*	3 over [5/hand]
9a			*igluane sisamāt*			4 of other of pair [of hands]
9b				*qoliniłuät*		**quləŋŋuRutəŋit-* : pEsk **-ŋ(ŋ)ur-* become + Inupik **utə-* fall out + **-ŋit-* lack (CED 314, 420, 382, 419)
9c	*arvinɛqun šitamanik*	*arfinɛqpun tisamaniŋ*		*arFineq sisamat*	*arpernar ciamat*	4 over [5/hand]
10a						Sirenik *tasiməŋiy* 5 : *tasixta* 10 (CED 328)
10b	*qulaulɛrpɒq*		*qulit*	*qulit*	*qulin*	**qulə(t)* 10 : **qulə-* area above (CED 314) = **quli-* 10 : **quli-* top (M 230, 239), hence 10 = the top one (Th 12, 19)
10c	*arvinɛqun tādlimanik*	*arfinɛqpun tadlimaniŋ*				5 over [5/hand]

Sources: Birket-Smith 1928; M Mudrak 1986; Menovščikov 1964; Th = Thalbitzer 1908.

Table 2: Numerals in Aleutan dialects

	Aleutan Bering Is.	Aleutan Atka Is.	Aleutan Attu Is.	Aleutan East	Aleutan Thalbitzer	Etymological comments
1	*aťakan*	*ataqan*	*ataqan*	*ataqan*	*atáxan*	cf. pEsk **ataRuciR* 1 (CED 50) and EAl *atuug-* both$_{B\,62}$
2	*ałax*	*alax*	*ulax*	*aalax*	*àlax*	cf. pEsk **alə R* other (CED 17)
3	*qankus*	*qankus*	*qankun*	*qaankun*	*kàŋkun*	cf. pEsk **qaməŋaR* ankle or wrist bone (CED 282)
4	*sičin*	*sičin*	*sičiŋ*	*sičin*	*sìčin*	cf. pEsk **citamat* (CED 86) : **cituk* (CED 87) = SibEsk **citu-* fingernail / claw (M 232)
5	*čaŋ*	*čaaŋ*	*čaaŋ*	*čaaŋ*	*čaŋ*	cf. Al *ča-ɦ* hand (CED 328; Th 43; Men 1977, 190)
6	*atuŋ*	*atuuŋ*	*atuuŋ*	*atuuŋ*	*atúŋ*	cf. 1 + *aŋuna-* be big : pEsk **aŋə-* id. (CED 32)
7	*ałuŋ*	*uluuŋ*	*uluuŋ*	*uluuŋ*	*ulúŋ*	cf. 2 + *aŋuna-* be big : pEsk **aŋə-* id. (CED 32)
8	*qamčiŋ*	*qamčiiŋ*	*qavčiiŋ*	*qamčiiŋ*	*kamčin*	cf. 3 and 5
9	*sičiŋ*	*sičiiŋ*	*sičiiŋ*	*sičiŋ*	*sìčix*	cf. 4 and 5 or *čaɦ* hand
10	*hatxiɦ* = *(h)átiɦ*	*hatix*	*hatix*	*hatix* = *átiɦ, ásaɦ*	*házak*	cf. Bering Is. *átkuɦ*, Med. *áxtuɦ*, Unalaska *hátxuɦ* finger (Men 1977, 153; in CED 4 ~ pEsk **aðyar/γ* hand) and / or

	Med *hátiĥ* (Men 153)			(Ven > Men 153)		pEsk **patəɣ-* hit with palm of hand (CED 251)? B 1997, 59-60 connects it with Al *hat-* outside, outward

Abbreviations: Al Aleut; Esk Eskimo; Gr Greenlandic; Lab Labrador; Med Mednyj ['Copper'] Island; p- proto-; Sib Siberian;
Sources: [2]; B = Bergsland 1997, 63; Men = Menovščikov 1977, 4; Th = Thalbitzer 1921; Ven = Veniaminov by Menovščikov 1977.

2. The Chukcho-Koryak languages are used from Chukotka to the north part of Kamchatka. In the central and south parts of the Kamchatka Peninsula the idioms of the Kamchatkan branch of the Chukcho-Kamchatkan language family were spoken. From the Kamchatkan languages and/or dialects known from the 18th cent. only one idiom remains, namely Itelmen, belonging to the Western subbranch of Kamchadal. An interesting legend was recorded among Chukchee people in the 19th cent. (published in 1905) about the leader called Kraxai and his people, who left the mainland a long time ago, and moved on the frozen sea to the North. Since every year the herds of reindeers migrated there, they anticipated there to be a big island [3]. It is generally accepted that this island was Wrangel, where bone tools were unearthed, but also the last traces of mammoths, both from the end of the 3rd cent. B.C. [4].

Table 2a: Numerals in Chukcho-Koryak languages

	Chukchee	Koryak Kamenskoe	Reindeer Koryak	Kerek	Paren	Chavchuven	Alyutor	Koryak by the Karaga Is.	Koryak from the Karaga Is.
	Bogoras	Bogoras	Saryčev	Skorik	Bogoras	Stebnickij	Stebnickij	Pallas	Pallas
1	*ĕnnénᵛ*	*ĕnnán*	*ennej*	*ənnan*	*ynnen*	*ənnen*	*ənnen*	*onnen*	*ingšinjan*
2	*ŋirăq*	*ŋijax*	*nikeix*	*ŋiĉčaq*	*ŋyččeq*	*ŋytᵛeq*	*ŋitaq*	*hittaka*	*nitjakaw*
3	*ŋyróq*	*ŋyjóx*	*njux*	*ŋjuq*	*ŋyjoq*	*ŋyjoq*	*ŋyroqqa*	*ŋroka*	*ŋšókaw*
4	*ŋyráq*	*ŋájax*	*nyjax*	*ŋjaq*	*ŋyjaq*	*ŋyjaq*	*ŋyraqqa*	*ŋraka*	*ŋšakaw*
5	*mýtlynen*	*mýdlynen*	*millegin*	*məlləŋi*	*mydlyŋen*	*myllaŋyn*	*myllaŋyn*	*myllaŋa*	*minlanka*
6	*ĕnnán-* *-mýtlyŋen*	*ĕnnán-* *-mýdlyŋen*	*anan-* *-malagin*	*ənnan-* *-məlləŋi*	*ynnan-* *-myllyŋen*	*ənnan-* *-myllaŋyn*	*ənnan-* *-myll*	*ənnan-* *-myllaŋa*	*ingšinn-* *yaka-šit*
7	*ŋerá-* *-mytlyŋen*	*ŋáa-* *-mýdlyŋen*	*niyax-* *-malagan*	*ŋiĉčaq-* *-məlləŋi*	*ŋyjaq-* *-myllyŋen*	*ŋyjaq-* *-myllaŋyn*	*ŋitaqqa-* *-myl(laŋen)*	*nyettan-* *-myllaŋa*	*ńyttyaka-* *-šit*
8	*am-ŋyró-* *-otken*	*ŋyjó-* *-mýdlyŋen*	*nyuxe*	*am-ŋju-* *juči*	*ŋyjoq-* *-myllyŋen*	*ŋyjoq-* *-myllaŋyn*	*ŋyroqqa-* *-myl*	*ŋrok-* *-myllaŋa*	*ŋyšoaka-* *-šit*
9	*qonjá-* *-čyŋken*	*qonjá-* *-čyŋyn*	*xoia-* *-čankin*	*qunhaj-* *-čiŋi*	*qoñhaj-* *-čyŋken*	*qoñhaj-* *-ćyŋken*	*ŋyraqqa-* *-myl(laŋen)*	*ŋrak-* *-myllaŋa*	*ŋyšaaka-* *-šit*
10	*myngýtken*	*myngýtčen*	*mingitkin*	*mnačči*	*myngýtken*	*myngytken*	*myngytken*	*myŋytkan*	*tamalgaša*

Sources: Anderson 1982.

Table 2b: Numerals in Kamchatkan languages and dialects

	Kamch. Tigil R.	Kamch. Tigil R.	W./C. Kamch.	W. Kamch.	W. Kamch.	S. Kamch. Boľšaja R.	S. Kamch. Kamčatka R.	S. Kamch. South	S. Kamch. Ukă
	Billings / Sauer	Billings / Saryčev	Skorik	Worth	Krašeninnikov	Billings / Saryčev	Billings / Saryčev	Krašeninnikov	Klaproth: Asia Polyglotta
1	*kemmis*	*xoniŋ*	*kŋiŋ*	*qaníiŋ*	*kóniŋ*	*dižk*	*dižk*	*dýzyk*	*dyzak*
2	*nittanoo*	*katxan*	*kasχ*	*kas*	*kássa*	*kaš*	*kaš*	*kaáž*	*kaza*
3	*čusquat*	*čoxan*	*čʰoq*	*coq*	*čóuk*	*čook*	*čok*	*čóok*	*ćogelč*
4	*čaša*	*čaxan*	*čʰaaq*	*čak*	*čáak*	*čaàk*	*čaak*	*čáak*	*ćagelč*
5	*koom-das*	*kumy-lx*	*qugumtunuk*	*kugumnuk*	*kugúmnuk*	*kuumdok*	*kumtk*	*koómnak*	*kohmnax*
6	*kilkoas*	*kylk*		*kelkug*	*kélkug*	*kilku*	*kilkuk*	*kýlkog*	*gylkox*
7	*ittax-tenu*	*etx-tonok*			*étuktunuk*	*idaxtuk*	*ötgtunuk*	*étaktanak*	*ahdanuth*
8	*čok-tenu*	*čax-tonok*		*čooktunuq*	*čóoktunuk*	*čuxtunk*	*čuxtunuk*	*čóoktunuk*	*čoludunug*
9	*čak-tanak*	*čax-tanuk*		*čaaktanaq*	*čáaktanak*	*čaktak*	*čaxtanak*	*čáaktanak*	*čaniŋdallaŋ*
10	*kom-took*	*kom-took*			*togóssa*	*kumxtuk*	*čumxtak*	*čúmxtuk*	*čomgdok*

Sources: Anderson 1982. Abbreviations: C. Central, Is. Island, Kamch. Kamchadal, R. River, S. South, W. West.

Table 2c: Reconstructions and etymological comments

	Ch.-Kamch.	Ch.-Kory.	Kamch.	Ch.-Kamch.	Ch.-Kory.	Kamch.	Etymological comments
	Mudrak 2001 (pp.)			Fortescue 2005 (pp.)			
1a	**hənhę-* 49	**(h)ənnen*	**kni-ŋ*		**ənnæn*345	*eqnin* other381	ChK **ən-* that, **ənno* he F 342 ?Nivx **ńi* 1
1b	**qun* 121	**qun* only	**qun* 1st	**qun-* once, one of pair241	**qun-* id.	*qun* once *ᵛq(u)niŋ* 1	cf. **qonRajcəŋken* 9 F 237
1c						E *dižk*380 Uka *dysak* S *dižk*	cf. E Rad *nizecul* alone F 345 (like NE *dyčil* : S *ničil* tongue; Worth 1959, 106?)
2a	**ŋičę-* 104	**ŋiše-q*	**nťi-lŋiŋ* 2nd	**ŋi(t)ôœq*197	**ŋiðœq*	S *nittanoo* 2 E *gitel* twice	F 420: ChKory **-q* has adverbial function

						W *ntilŋin* 2nd	
2b						$E^{Kraš}$ *kaaš*$_{397}$ W *kasx* W^{Sur} *katxan* S *kas*	M 77: Kamch **kasx* 2 + ChKory **vacqъ* other < ChK **k^{w}asqъ* F 397: ChK **kœγ(ə)-* hand$_{F\ 129}$ or E *keko* finger, Uka *kikec* id. or better with U **käktä* : **kakta* 2 (Blažek 1999, 90-91)
3	**ŋьroq* $_{103}$	**ŋъro-q*	**č'o-q*	**ŋərok*$_{202}$	**ŋəroq*	*c'oq*; *c'ol* 3x	?Nivx **ťe* 3; ChKory **ŋV-* can be secondary under the influence of 2 and 4 or a prefixed pronoun **ŋV-*, cf. ChK **ŋu-* that$_{M\ 105}$, **ŋen-* / **ŋan-* id.$_{M\ 190}$; Ch *ŋət'ɛ-q* many, much$_{F\ 190}$;
4	**ŋьraq* $_{103}$	**ŋъra-q*	**č'a-q*	**ŋərak*$_{202}$	**ŋəraq*	*c'aq*; *c'al* 4x	?Ch **ŋəra-lŋən* knee$_{F\ 202,\ M\ 190}$?Nivx **ny* 4 : **minr* 8 = **mi* 2 x **nr* *4 (Panfilov 1968, 413)
5a		**mъllъŋɨna*$_{187}$			**məllaŋena*$_{183}$		< **mənlaŋena* : **mənyə* hand + sglt. **-lŋən* + poss. **-inœ*$_{412}$
5b						**qugum*^{o} < **qu[n]-kum-* *-tanu-k* or < **qo-kum*^{o}	1 x 5? of arms? cf. Karaga *konmeneglan* arm, = 1 x hand (Worth 1962, 589) or half of ten, cf. W *ko-lŋen* half$_{F\ 150}$ + sglt. in **-lŋən*$_{F\ 183}$; + E^{Rad} *tnoc*, E^{Ernn} *tononge*ɴ, E^{Klap} *tannun* shoulder$_{F\ 388\text{-}89}$ $W^{Kraš}$ *tynynga*, W^{Rad} *tynen* $S^{Kraš}$ *tannun*, S^{Sur} *tanutano*
6a					**ənnan-* *-məllaŋen*		1 + 5
6b						E *kilkuk*$_{389}$ S *kylkog* W *qelyuk*	cf. ChK **kəlœ-* follow$_{F\ 144}$ + ChK **k^{w}ěγ^{w}ə* fingernail$_{M\ 77}$ or Kamch **qula* other$_{M\ 120}$ + ChK **kěγə-t'* hand$_{M\ 67}$
7a					**ŋiðœq-* *-məllaŋen*		2 + 5
7b						E *etaxtanu*$_{388}$ S *idaxtuk* W *etuktunuk*	2 (without **ŋ-*!) + hand, arm, shoulder: E^{Rad} *tnoc*, E^{Ernn} *tononge*ɴ, E^{Klap} *tannun* shoulder$_{F\ 388\text{-}89}$ $W^{Kraš}$ *tynynga*, W^{Rad} *tynen* $S^{Kraš}$ *tannun*, S^{Sur} *tanutano*
8a					**ŋəroq-* *-məllaŋen*		3 + 5
8b					Ch **am-nəroq-* *-otken*		just the third, i.e. third from the right hand (Bogoras 838)
8c						**c'oq-tanuq*	3 + arm
9a					**qonRajcaŋken* $_{237}$		**qun-* 1 + **arəcŋ(at)-* lying down + **-kinœ*
9b					Kory.^{Bog} *qonjɑwacə*		1 behind : *javal* back$_{F\ 237}$ (cf. Bogoras 838)
9c					**ŋəraq-* *-məllaŋen*		4 + 5
9d					Ch *amyŋyt-* *kau'kɛlên*		not being the tenth (Bogoras 839)
9e						**c'aq-tanuq*	4 + arm
10a		*mъnyъtkina*$_{187}$			**mənyətken(a)* $_{184}$		cf. **mъnyъ(t)-* hand$_{M\ 187}$ = **mənyə+t* pl./du. hands$_{F\ 184}$ + + loc. **-k-* + poss. **-inœ* 'associated with'$_{F\ 409,\ 412}$
10b					Karaga$_{395}$: ^{Kraš}*tamalgaša* ^{Klap}*damalagnos*	W *tovassa*$_{395}$ $W^{Kraš}$ *togossa*	*second thumb (?) = last finger in counting from the little finger: E *tnec*, W *təmqe*, S *tamk* thumb$_{F\ 396}$ x Kamch **kasx* 2?
10c						S^{Sur} *kumxtuk* $_{395}$ S^{Sau} *komtook* E^{Rad} *cumxtak* $E^{Kraš}$ *cumktuk*	cf. Yk **kümni-*, FV **kümen* 10 (see Tablet 3c: 10a); latter component cf. E *tnec*, W *təmqe*, S *tamk* thumb$_{F\ 396}$ or E^{Rad} *tnoc*, E^{Ernn} *tononge*ɴ, E^{Klap}

						Uka *comgdok*	*tannun* shoulder$_{F\ 388\text{-}89}$ $W^{Kraš}$ *tynynga*, W^{Rud} *tynen* $S^{Kraš}$ *tannun*, S^{Sur} *tanutano*

Abbreviations: Bog Bogoras, Ch Chukchee, Ch. Chukotkan, ChK Chukcho-Kamchatkan, E East Kamchadal, Erm. Erman, F Fortescue 2005, Kamch Kamchadal, Kamch. Kamchatkan, Klap Klaproth, Kory. Koryak, Kraš Krašeninnikov, M Mudrak 2001, Rad Radłiński, S South Kamchadal, Sar Saryčev, Sau Sauer, sglt. singulative, U Uralic, W West Kamchadal.

3. The west neighbors of the Chukchee and Koryak tribes were the Yukaghirs. In the 18th cent. they lived in a vast territory from the lower Lena in the west to the Anadyr river in the east. Their southern border was formed by the Mountains of Verkhoianskij and in the north it was the Arctic Ocean. Today only two meager communities remain, North Yukaghir, living in the tundra by the Alazeia River, and South Yukaghir living in the forests by the upper Kolyma River, each with its own mutually unintelligible language. The easternmost tribe, the Chuvans, was integrated into the Chukchees. From the south the area formerly occupied by Yukaghirs was replaced by Evens and Evenkies of Tungusic origin, the west is occupied by Yakuts of Turkic origin [8].

Table 3a: Numerals in Yukaghir languages

		1	2	3	4	5
Northwest = Ust'janskij (Erm.)		*irkon*	*andaklon*	*jalon*	*malgandklon*	
Klička (1781)	at.	*irken*	*adaklon*	*jalon*	*jeloklon*	*ankanwon, änganbut*
	ord.	*amnugonle*	*kenmegi*	*jaltarki*	*jelaklarki*	
Billings (cf. Pallas 1787, #152)		*irken*	*antachlon*	*yalon*	*yelaklon*	*enganlon* *ankanwon*
Raiskij (1858)		*irkei*	*adakloi*	*jalloi*	*elakloi*	*imdalžoi*
Suvorov (1861)		*irkei*	*adaxloi*	*jaloi*	*jelakloi*	*inkanwun*
von Maydell (1870)		*irkei*	*adakloi*	*jaloi*	*jelekloi*	*purkijei!*
South/Upper Kolyma (Jochelson 1905)	at.	*irkin*	*átaxun*	*yan*	*yélokun*	*iñyańbodže*
	pr.	*irkiei*	*átaxloi*	*yáloi*	*yáloxloi*	*iñyańboi*
	ord.	*áŋnumeľe*	*átaxleški*	*yálmeški*	*yálaxleški*	*iñyanbeški*
South/Upper Kolyma (Krejnovič 1982)	at.	*irkind*	*ataxund*	*jand*	*ilekund*	*iñyańboďed*
	pr.	*irkiej*	*ataqloj*	*jaloj*	*ileqloj*	*iñayańboj*
	ord.	*annumeľe*	*ataxleški*	*jalmeški*	*ileqleški*	*iñayańboški*
Chuvan (Boensing 1781)			*kujen, kujun*	*jalgoń, jalgan*	*nägane, näxane*	*axtem-xanbo(nlga)*
Chuvan (Matjuškin 1820)			*kuen*	*jalon*	*njagon*	*emgangon = *emgambon*
Omok (Matjuškin 1820)		*urki*	*tkit* cf. *kit-kimnel* 20	*jalom*	*erpol*	*ekončі-kimnel* little ten
North / Tundra (Maslova 2003)	at.	*mārqa-ń*	*ki-n*	*jā-n*	*jeluk-un*	*imdaľďi-n*
	pr.	*mōrqō-ń*	*kijō-ń*	*jalo-ń*	*jalakla-ń*	*imdaľďa-n*
	ord.	*kija-ďe-ľe*	*konme-gi-sťe*	*jalmi-sťe*	*jelekle-sťe*	*imdaľďe-sťe*

Table 3b

	6	7	8	9	10
Northwest = Ust'janskij (Erm.)	*malgjalon*	*burtschön* < **burkjōn*	*malgjelaklon*	*irkin kunel elendschönt*	*kunel*
Klička (1781)	*malgijalon*	*purkijen*	*malgijeloklon*	*kunel irki eladen*	*chuniella*
Billings (cf. Pallas 1787, #152)	*malgaialon*	*purchion*	*malghialachlon*	*chuni irke ellenzschien*	*kunolen*
Raiskij (1858)					*kunčalloi*
Suvorov (1861)					*gunalei*
von Maydell (1870)	*malgijaloi*	*irke tolkomanni*	*malgijelakloi*	*kunailin irket oile*	*kunaileoi*
South/Upper Kolyma (Jochelson 1905) at.	*mályiyan*	*purkioi*	*mályiyèloxloi*	*kunírkiledžeoi*	*kúnel*
pr.	*mályiyàloi*	*purkiyin*	*málgiyelokun*	*kunírkileželeodže*	*kuniyin*
ord.	*mályiyàlme-ški*	*purkíye-ški*	*mályiyàlexle-ški*	*kunírkiledžeo-ški*	*kunéle-ški*
South/Upper Kolyma at.	*melya-nd*	*pur-kiji-nd*	*malyileku-nd*	*kunerkiľďoďe-d*	*kuńi-nd*

(Krejnovič 1982)	pr.	*melγ-alo-j*	*pur-kijo-j*	*molγ-ileqlo-j*	*kunerkiľďo-j*	*kuneľo-j*
	ord.	*melγalmo-ški*	*purkijo-ški*	*malγ-ileqlo-ški*	*kunerkiľďo-ški*	*kuneľe-ški*
Chuvan (Boensing 1781)		*imoxanbo tudole*	*imoxanbo kijoń*	*imoxanba jalgan*	*imoxanba nägan*	*xambo megii*
Chuvan (Matjuškin 1820)		*emgangago tudalej*	*emganbu kuek*	*emganbagu jalon*	*emganbagu njagon*	*xanba megei*
Omok (Matjuškin 1820)						*kimnel*
North / Tundra (Maslova 2003)	at.	*māleji-n*	*puskij-in*	*mālejluk-un*		*kun...*
	pr.	*mālajla-ń*	*puskije-ń*	*mālajlakla-ń*	*waľyańumkruo-ń*	*kunaa-ń*
	ord.	*māleje-sťe*	*puskije-sťe*	*mālajlekle-sťe*	*waľyańumkruo-sťe*	*kuniľe-sťe*

Abbreviations: at. attributive, Erm. Ermitage ms., pr. predicative, ord. ordinal numeral.
Sources: Jochelson 1905; Krejnovič 1958, 1968, 1982; Maslova 2003; Schiefner 1859, 1871 [Billings, Ermitage ms., Klička, Raiskij, Suvorov], 1872 [von Maydell]; Tailleur 1959 [Matjuškin on Omok], 1962 [Boensing, Matjuškin on Chuvan].
Note: The attributive forms are terminated by the genitive ending *-nd* (~ *-n/-d*), the predicative forms are terminated by the markers of the 3rd person of sg. in *-ń* in North (Tundra) and *-j* in South (Kolyma) Yukaghir (Krejnovič 1982, 116-17). The preceding *-o-* in South and in 1, 2, 3, 9 in North (Kurilov 1977, 36-37).

Table 3c: Reconstructions and etymological comments

	Forms and protoforms	Etymological comments
1a	S-Om **i/ü-rk-i-*	cf. Sm **i* top (Janh$_{77}$, 26); semantics as in Selkup *ukkir* 1 < Sm **ukə* end, front part < U **ukə* head (UEW 542-43; Blažek 1999, 90) plus the suffix *-rqa/-rke* in *ťoyurqa* straits, narrows : *ťoyunej* narrow, *pömerke* circle : *pömnej* round (Kur$_{77}$ 88; Krej$_{82}$ 84-85, 114; Krej$_{68}$, 439)
1aa	N **mV-ürk-a-/-ō-*	Prefix **mV-* is perhaps identical with the affirmative prefix in S+N *me-* (Masl$_{03}$, 23-24; Krej$_{68}$, 444-45; Tail$_{59}$, 87)
1b	S-Chuv **ińa-/?*ima-(γanβa^{o})* 1 x 5	cf. S *inle/ille* one of many, some, certain (Ang$_{57}$, 73) ‖‖ NSm: Enets *inō* dieser da / Selkup *jem*, *ēm* etwas (Coll$_{40}$, 73: Yk + Sm)
1c	Chuv$_B$ *axtem(-xanbon^{o})* 1 x 5	S *ax* only, alone, *axtāt* (= N *irkiłaŋi* : *irki-* 1) постоянно (Coll$_{40}$, 104), N *áxte*, *ax-* only (Tail$_{62}$, 64) ‖‖ ?FP **ükti*, Ug **üki* 1 etc. (Blažek$_{99}$, 90)
1d	Chuv$_B$ *(imoxanbo) tudole* = Chuv$_M$ *(emgangago) tudalej* 6 = 1x5 + 1 *(xanbamegej) tudalej* 11 = 5x2 + 1	cf. Chuv$_B$ *tudol & tundol* (s)he, acc. *tundole* eam = S, N *túdel* he, S acc. *tudele*; further S *túdežie* only, alone = N *túreǯie* the same (Tail$_{62}$, 78-79)
1e	S *aŋnumeľe* 1st : *aŋnume* in the beginning	cf. Chuv$_B$ *aimotudole* 1st, corr. **aŋmo-tudole* the first that, NW *ańjunma* auparavant, S$_{Klička}$ *amnugonle*, corr. **agnumonle* 1st (Tail$_{62}$, 64)
1f	N *kija-ďe-ľe* 1st	N *kiajalel* fore (Krej$_{68}$, 443) : *kiejie* before (Kur$_{2001}$, 156)
2a	**kuj-i-*	including Omok **kit* (*tkit* 2, *kit-kimnel* 20) < **kijid*, cf. N *kīd* (Tail$_{59}$, 84) ‖‖ FU **koj-monVś* 20 : **moni* quantity (UEW 224-25, 279) ‖‖ Mong *qoyar* 2 : *qoyina* after, behind (Blažek$_{99}$, 96-97, 112)
2aa	**anta-kuj-i-* these 2 or there are 2	cf. S *ada* this (Ang$_{57}$, 3), N *ada* there (Krej$_{82}$, 154); on **-nt-* see Nikolaeva$_{88a}$, 45 ‖‖ ?Sm **ånə* another (Janh$_{77}$, 18)
2b	N *konme-gi-sťe* 2nd	from N *könme-gi* the other one : N *könme* companion (Masl$_{03}$, 46) OSYk: Klička *kenmegi*, von Maydell *kenmögi* other, S *kenmegi* one and another : *kenme* friend, companion (Ang$_{57}$, 122, 113)
2c	**malγa/i-* (NW 4; all 6, 8 without Chuv)	N attr. *malaγun* both, S *ma·layude* (**malaγunte*) id. (Coll$_{40}$, 104; Ang$_{57}$, 149), N *malγur* on both sides (Krej$_{82}$, 114); Joch$_{1905}$, 113 explained it from S *málγi* joint, i.e. *málγi-yaloi* 6 = joint-3, *malγi-yeloxloi* 8 = joint-4; cf. pEsk **malRuγ* 2 (CED 186-87), maybe a source of the Yk words (Coll$_{40}$, 103)
3	**jal-* (/**jel-* in 4 = 3+1)	cf. N *jel-ger* further : *mil-ger* here (Krej$_{82}$, 158); Kurilov$_{77}$, 36 derived it from N *laja* back, *lajā/jalā* last; at the back (Kur$_{2001}$, 191), S *jola* after, beyond (Ang$_{57}$, 99); cf. Tg **yel-* 3; Eskimo (MacKenzie R.) *illa·k* 3rd (Blažek$_{99}$, 121-22)
4a	**jel-aq-*	3 + 1, cf. **jal-* 3 + NS *aq* only (see above 1c); Kurilov$_{77}$, 37 analyzed it as **jala-* 3 + *jekľie* beyond, i.e. 4 = beyond 3
4b	NW **malγa-anta-kuji-*	both these 2
4c	Chuv **njag/x-on*	< Kory *ŋyjáq* 4 (Tail$_{62}$, 85)
4d	Omok *erpol*	mistaken interpretation; it corresponds with S *órpol* pound (Tail$_{59}$, 88)
5a	(**ińa-/*axtem-)*qanβa-*	1 hand: Chuv$_M$ *xańba*, Chuv$_B$ *xanbo* hand, *xaanba anga*, corr. **xanbanga* in the hand; S *xáńba* palm of the hand; further cf. 6b, 7b, 8b, 9b, 10b and Chuv$_M$ *puneksidokuen* 20, corr. **pune-kenbo-kujen* 2 hands in addition (Tail$_{62}$, 69); first component - see 1b, 1c; cf. Tg **komba-* wrist, hand < Alt **kompo* fist, wrist (EDAL 718)
5b	(**ima-)*tal[on]če*	S$_{Pallas}$ *tolonža* humerus, manus, digitus, N *ťalďeŋ* hand (Krej$_{82}$, 116) ‖‖ ChK: NEKamch *təl(l)o* elbow (Worth$_{59}$, 111); cf. pEsk **taliR* arm (CED 328); Al *talRi-ɦ* branch, (CED 328; B 100), *tulaŋ* arm (Th$_{08}$ 44) ‖‖ Alt **talo* shoulderblade (EDAL 1351)
5c	S$_{von\ Maydell}$ *purkijei*	originally 7
5d	Omok *ekonči-kimnel*	*little ten : Omok **jekonči* ~ S *jukúoǯe*, N *lukuoďe*, NW *likotschit*; cf. also Omok

		tčemo-kimnel 100 = big 100 : S, N *čomo-* big (Tail$_{59}$, 84, 87, 95)
6a	**malyi-jal-*	both 3
6b	Chuv **ima-xanβa- tudole*	1 x 5 + that one (> he)
7a	**puδ-kuji-*	2 over [5], i.e. 2 in addition; cf. N *pure*, S *pude*, Billings *pudanmoi*, Merk *pudangma* hill, top (Nik$_{88a}$, 45) ||| U **piδi* high, long (UEW 377)
7b	Chuv **ima-xanβa kuji/o-*	1 hand + 2
7c	S$_{\text{von Maydell}}$ *irke tolkomanni*	1 hidden, if *tolk*° can be connected with N *talyuol-* hide (Kur$_{2001}$, 459), i.e. 7 = [8] - 1
8a	**malyi-jel-aq-*	both 4
8b	Chuv **ima-xanβa-jal-*	1 hand + 3
9a	NW *irki[nd] kunel *oi-le-*	1-10-not being, i.e. 1 subtracted from 10
9aa	S **kunel irki[nd] oi-le-*	10-1-not being, i.e. 1 subtracted from 10
9b	Chuv **ima-xanβa-njag-*	1 hand + 4
9c	N *wal'yaŋumkruo-*	1 from all, cf. N *wal'yare* half; one from pair, one from, *wal'yande* one from (Kur$_{2001}$, 63-64) and N *ŋumruo/ŋumduo* all, *ŋumde-* be whole (Kur$_{2001}$, 330) ||| Sm **wə̄j-* half (Janh$_{77}$, 169)
10a	**kümni-*	cf. FV **kümen* 10 (UEW 679); Kamch **kum-x-tanu-k* 10
10b	Chuv **xanβa me[l]yi*	both hands

Abbreviations of languages: Al Aleut, Alt Altaic, ChK Chukcho-Kamchatkan, Chuv Chuvan, E East, Esk Eskimo, FP Fenno-Permian, FU Fenno-Ugric, FV Fenno-Volgaic, Kamch Kamchadal, Kory Koryak, Mong Mongolian, N North, NW Northwest, O Old, S South, Sm Samoyedic, Tg Tungusic, U Uralic, Ug Ugric, Yk Yukaghir.
Abbreviations of authors: Ang Angere, B Boensing, Coll Collinder, Janh Janhunen, Joch Jochelson, Krej Krejnovič, Kur Kurilov, M Matjuškin, Masl Maslova, Nik Nikolaeva, Th Thalbitzer.

Conclusion

Analyzing and comparing the systems of numerals in three 'Arctic' language families, Eskaleutan, Chukcho-Kamchatkan, and Yukaghir, it is possible to conclude that the most dominant is the quinary system which is at least partially characteristic of all three language families. Almost a common exception is the numeral "9" which has been expressed as the subtraction "10 - 1" in some of the Eskimo (9b), Chukcho-Koryak (9a, 9b, 9d) and Yukaghir (9a/aa, 9c) idioms. Of the Yukaghir idioms, only Chuvan preserved the quinary system in the internal structure of all the numerals 6-9, in other idioms only the numeral seven reflects the structure "7 over [5]" (7a). Quite differently is formed "7" in the idiom described by von Maydell: "1 hidden [from 8]", i.e. "1 subtracted from 8". The numeral "6" and "8" represent the expressions "both 3" (6a) and "both 4" (8a), respectively. The same binary approach was applied in the Northwest Yukaghir numeral "4" = "both these 2" (4b). And quite unique is the origin of the numeral **yelaq-* "4": "3 + 1" or "beyond 3" (4a), indicating traces of the ternary system in Yukaghir. On the other hand, the numeral "4" in Chuvan (4c) is apparently borrowed from some Chukcho-Koryak source. It is also possible to speculate on borrowing from some Eskimo source (cf. Kluge 1939, 651 and Collinder 1940, 103-04) in the cases of the Yukaghir numerals **malya/i* "both" (2c) and perhaps **ima-tal[on]če* "5" (5b), although the latter case can alternatively be interpreted as a common Nostratic heritage (see below). A form such as Yukaghir *kunel* etc. "10" is compatible with neither proto-Eskimo **qulə(t)* nor Southwest Alaska *qoln*, East Greenlandic *qulin* "10", because the Yukaghir protoform should be **kümni-* (cf. Omok *kimnel* "10"). Although most of the numerals analyzed here are etymologizable in their own language families, it is possible to identify some possible archaisms with cognates in other Nostratic branches:

1A. Chukcho-Koryak **ənnæn* "1" ||| Yukaghir **ińa-* "1, single" ||| Nivx *ńi* "1" ||| Samoyedic: Enets *inō* "dieser da".
1B. Yukaghir **aq(te)* "only" ||| Fenno-Permian **ükti*, Ug **üki* "1".
2A. Kamchadal **kasx* (W^{Saryčev} *katxan*) "2" ||| Uralic **käktä* ~ **kakta* "2".
2B. Yukaghir **kuji-* "2" ||| Fenno-Ugric **koj-monVś* "20" ||| Mongolian *qoyar* "2".
2C. Aleut **alaħ* "2" | pEskimo **aləR* "other" ||| Chukcho-Kamchadal **ælvæ* "other, different" ||| Ugric **äl3-* & **äl3m3-* "other side".
5. Eskimo **tałłimat* "5" : **taŀiR* arm | Aleut *talRi-ħ* "branch" ||| NEKamchadal *təl(l)o* "elbow" ||| Yukaghir **ima-talonče* "5" : **talonče* "arm, hand, finger" ||| Altaic **talo* "shoulderblade" (EDAL 1351) ||| Dravidian **tōḷ* "arm, shoulder" (DEDR 3564) - see Illič-Svityč 1967, 355.

10. Kamchadal **kum-x-tanu-k* "10" ||| Yukaghir **kümni-* "10" ||| Fenno-Volgaic **kümen* "10".

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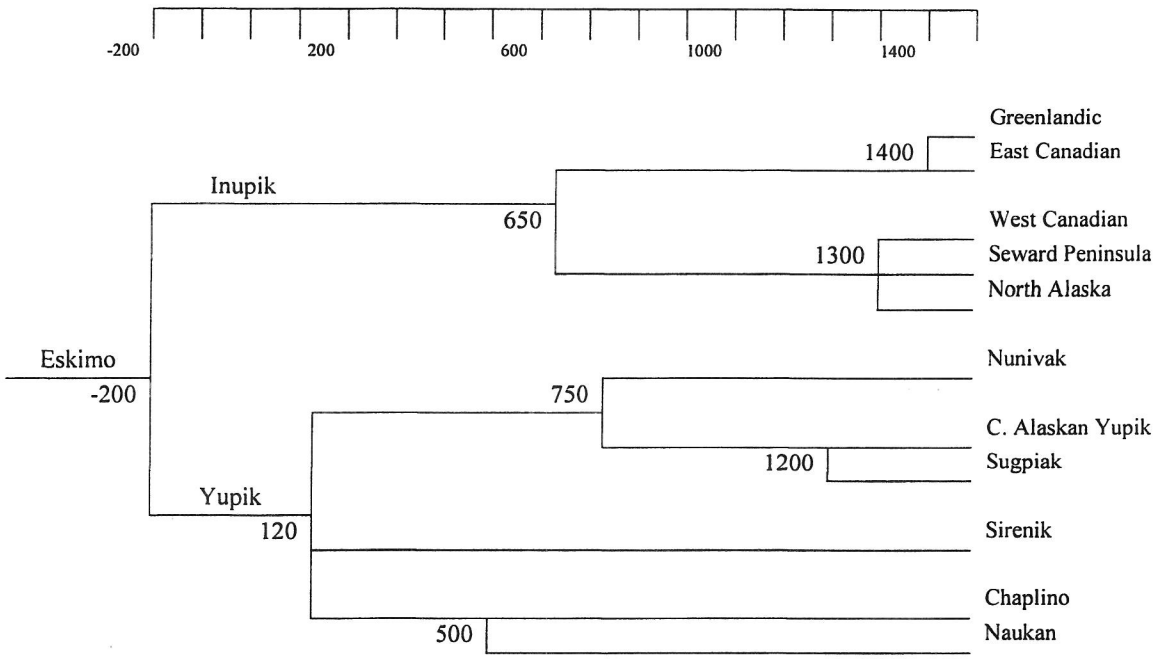
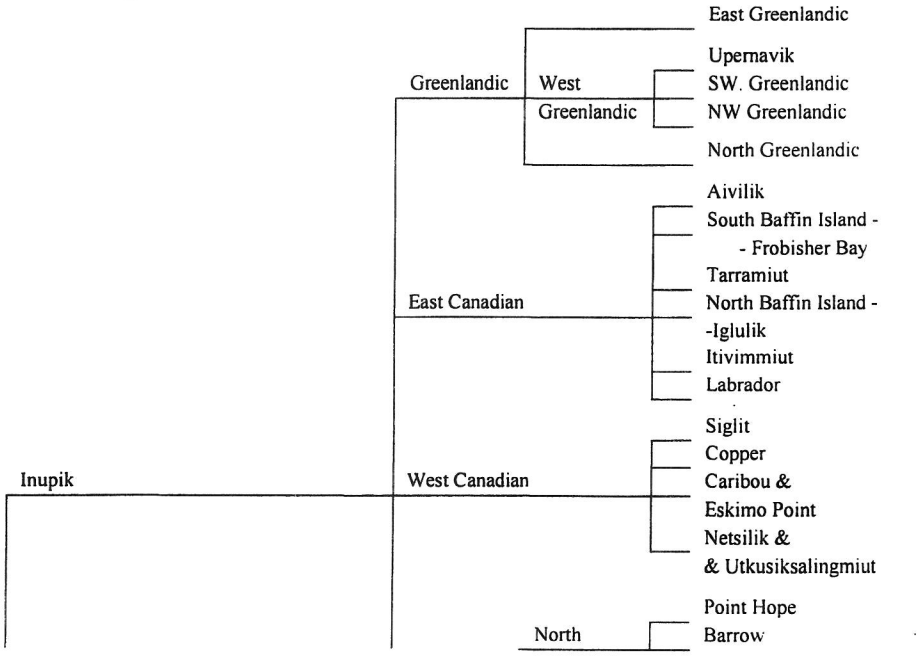
Appendix: Survey of the language families discussed in the article

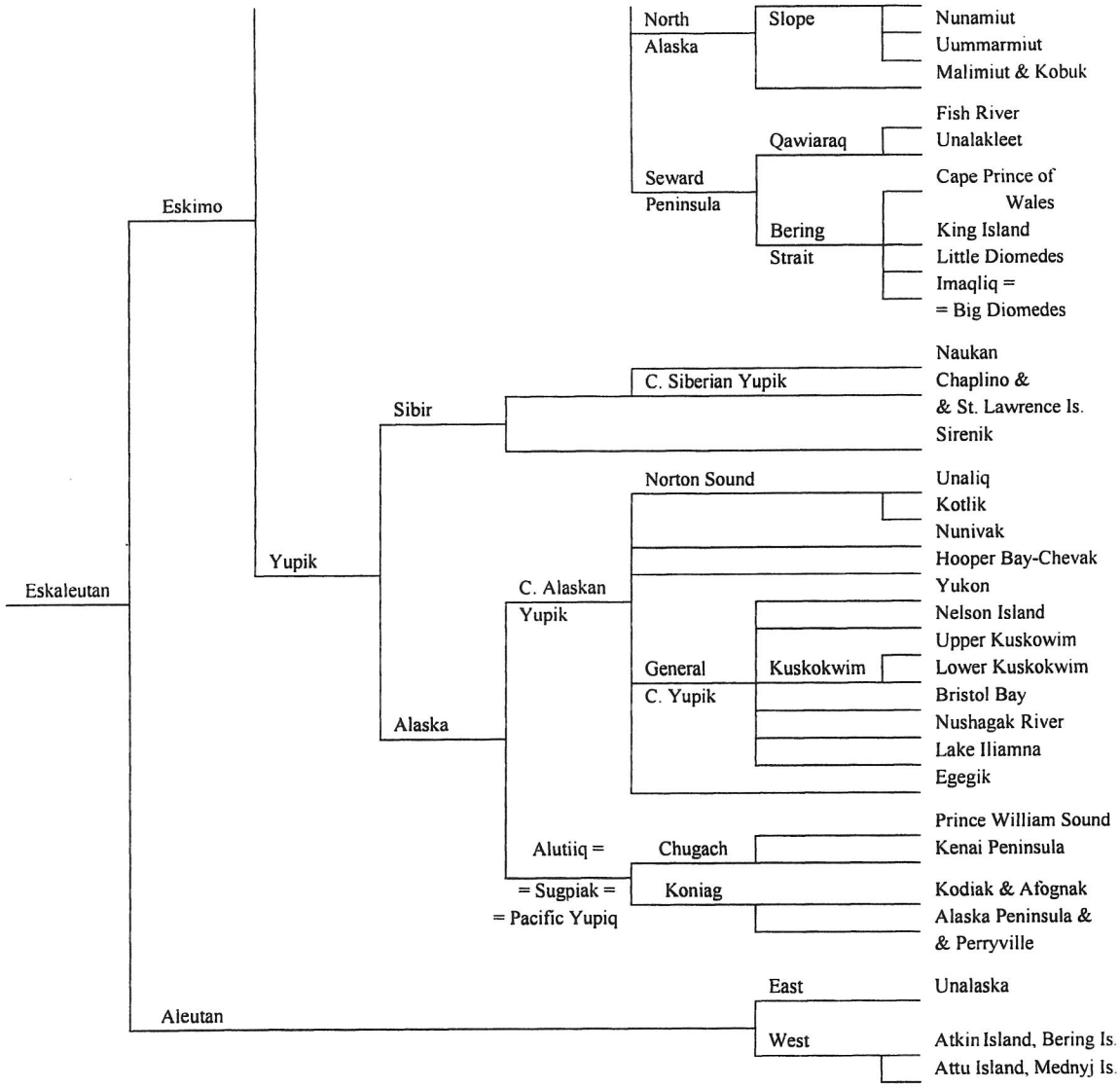
A. ESKALEUTAN LANGUAGES

Aa. The following tree-diagram is a result of the application of Starostin's 'recalibrated' glottochronology to classification of the Eskaleutan dialect continuum. The author of this scheme is Oleg Mudrak:



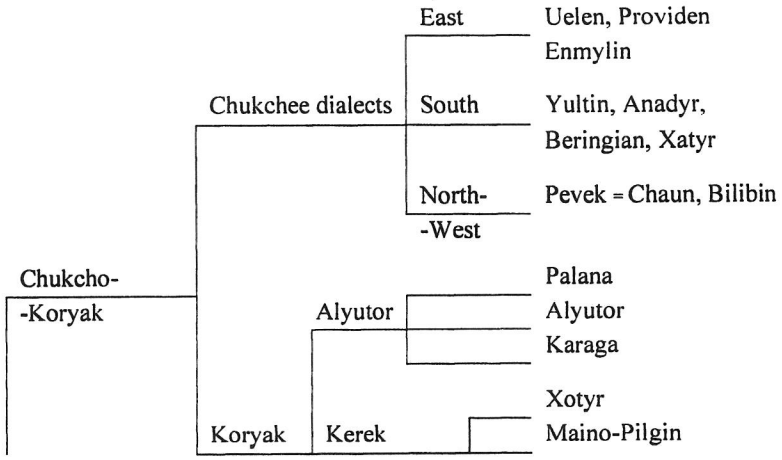
Ab. Fortescue, Jacobson, Kaplan (1994, xii-xiii) present a detailed survey of the Eskaleutan idioms, forming the base of the following scheme:

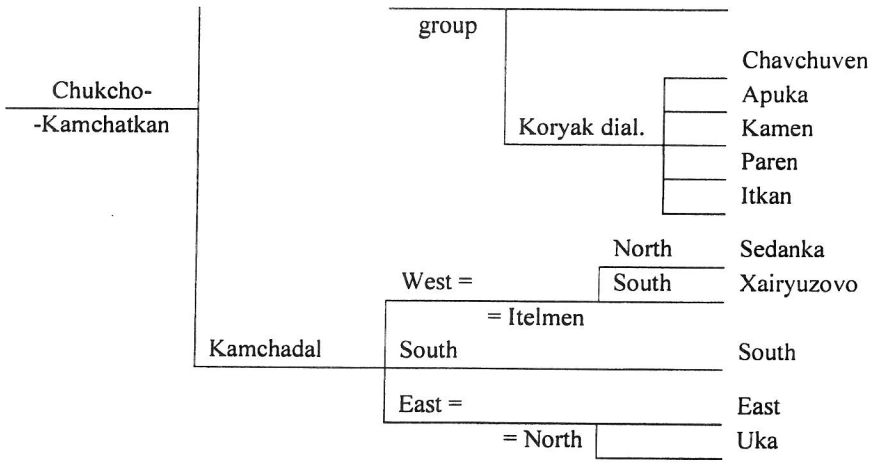




B. CHUKCHO-KAMCHATKAN LANGUAGES

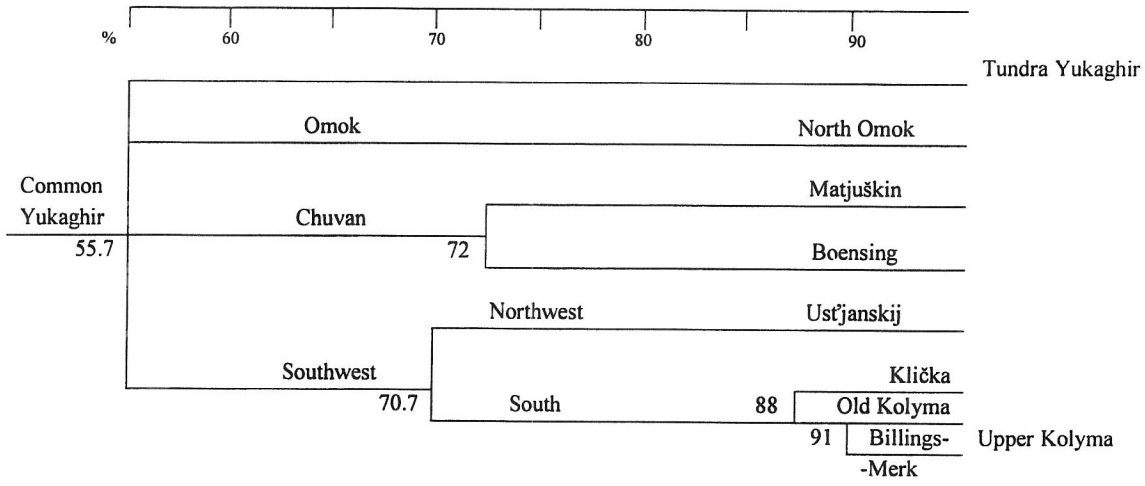
The following scheme of classification of the Chukcho-Kamchatkan languages was proposed by Fortescue (2005, ix-x):





C. YUKAGHIRIC LANGUAGES

On the basis of materials collected by Nikolaeva (1988b, 49-51), it is possible to construct the following scheme, depicting the mutual relations between all described Yukaghir 'dialects', in reality independent languages. Of them only the North ('Tundra') and South ('Kolyma') survive till the present time. The average value of 55.7% between the South (or Southwest) branch and representatives of the North branches indicates the beginning of their divergence in the mid-9th cent. B.C.



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Chukcho-Kamchatkan and Uralic: Lexical Evidence of Their Genetic Relationship

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Résumé:

0. Introduction
1. Lexical comparisons
    1.A. Cognates between Chukcho-Kamchatkan and Uralic, including its partial branches
    1.B. Cognates between Chukcho-Koryak and Uralic, including its partial branches
    1.C. Cognates between individual Chukcho-Koryak languages and Uralic, including its partial branches
    1.D. Cognates between Kamchatkan (Itelmen) and Uralic, including its partial branches
2. Sound correspondences
3. Conclusion
4. Bibliography
5. Appendixes: I. Sound correspondences; II. Tree-diagrams.

0. Introduction

The Chukcho-Kamchatkan languages, particularly Koryak and Itelmen, were first described by Krašeninnikov in 1755. He was also the first to recognize the relationship between Chukchee and Koryak, and of both with Itelmen (cf. Vdovin 1954, 46). The first sketch of the comparative grammar of the Chukcho-Koryak languages (with occasional examples from Itelmen) was published by Radloff (1861). His follower Bogoraz (1922) significantly expanded the comparative material. In recent times the following attempts to determine the regular sound correspondences between Chukcho-Koryak or Chukcho-Kamchatkan languages were formulated: Golovastikov & Dolgopol'skij (1972); Muravjeva (1986, 1988); Mudrak (1988, 2000); Fortescue (2005).

It was Holger Pedersen who already in 1903 postulated the Chukcho-Kamchatkan language family as a member of the Nostratic macrofamily. In the fifties J. Ankeria and K. Bouda studied the specific relations between Chukcho-Kamchatkan and Uralic. The latter scholar in particular collected hundreds comparisons in a long series of studies (1952, 1955, 1961, 1965, 1969, 1970, 1976, 1979, 1980). Unfortunately, without application of the comparative-historical method many of his equations are valueless. On the other hand, in terms of the sheer number of comparisons, Bouda's articles stand as the richest source of the comparisons presented here.

In the sixties A. Dolgopolsky returned to the idea of the Nostratic affiliation of Chukcho-Kamchatkan. J.H. Greenberg included Chukcho-Kamchatkan in 'Eurasiatic' in his monograph *Indo-European and its closest relatives: The Eurasiatic Language Family*, I-II, Stanford University Press (2000-02), unfortunately without sound laws. The first scientific step was made by Golovastikov & Dolgopol'skij (1972), who were the first to try to reconstruct the Chukcho-Koryak proto-language on the basis of regular sound correspondences. They also formulated preliminary phonetic correspondences between Chukcho-Koryak and Itelmen.

In the eighties the Chukcho-Koryak reconstruction was refined and expanded by I. Muravjeva, and around the same time O. Mudrak began his study of Chukcho-Kamchatkan languages. Mudrak's recently published *Etymological Dictionary of the Chukcho-Kamchatkan Languages* (2000)[1] opened a new era in the effort to determine the position of Chukcho-Kamchatkan in a global genetic classification of languages. Not much later the *Comparative Chukotko-Kamchatkan Dictionary* of Michael Fortescue (2005) supplemented Mudrak's. Fortescue's reconstructions were used by Allan

[1] In Russian. See References under M = Mudrak, Oleg. 2000. [Ed.]

Bomhard, who included some Chukcho-Kamchatkan data in his monumental monograph *Reconstructing Proto-Nostratic: Comparative Phonology, Morphology, and Vocabulary* (2008).

In the present study, which is a significantly revised version of my article from 2007 (now with Greenberg's comparisons and Fortescue's reconstructions), the question of the external genetic relatives of Chukcho-Kamchatkan is limited to Uralic, because the reconstruction of the Uralic proto-language is the most highly developed among the likely candidates for the closest relationship with Chukcho-Kamchatkan (the others being Nivx [Gilyak] and Yukaghir). All comparisons are based on the standard reconstructions of Uralic or its daughter branches according to Rédei's *Uralisches etymologisches Wörterbuch* (= UEW), sometimes contrasted with Sammallahti (1988 = S), Xelimskij (1976 = X) and Collinder (1960 = CG); most of the reconstructions of Chukcho-Kamchatkan or Chukcho-Koryak are by Mudrak (2000 = M), usually compared with Fortescue (2005 = F).

1. Lexical comparisons

A. Cognates between Chukcho-Kamchatkan and Uralic, including its partial branches.

1. ChK **'ajta* "to drive" (M 20), cf. Chuk *aj-əlg* "to fear"; = ChK **ajtat-* "to drive (herd)" (F 18)
FU **aja-* "treiben, jagen" (UEW 4) = **åjå* "to drive" (S 542); cf. Sm **åjtå* "loslassen, schicken" (SW 17)
Lit.: Bouda 1952, 33: Ch + FU.

2. ChK **'ajvă* "brain" (M 20) = ChK **ajwa* brain (F 19)
U **ojwa* "Kopf, Haupt" (UEW 336) = **ojwå* "head" (S 536)
Yuk **öwj-* "edge, tip" (Nikolaeva, *Sovetskoe Finnougrovedenie* 1988, 82).

3. ChK **'el* "no" (M 27); cf. also Ch **el-* in **el-eγti-* "to be unable" (M 160) = ChK **æl(læ)* "not", Ch **ælæjti-* (F 31, 32)
U **äla* or **ela* '2sg imper. of the negative verb' (Illič-Svityč I, #128; CG 405: **elä*)
Yuk: S *ele* "no", cf. the sentence *ele, met niu Debegei oi-le* "no, my name is not Debegei" (Tailleur, G.O., Sur les négations *ei* et *ele* ains que le verbe *le-* 'être' dans une langue de la Sibérie septentrionale, in: *Congressus Internationalis Fenno-Ugristarum*, Budapest: Akadémiai Kiadó 1965, 108), Chuvan *īlī*, Omok *alla* "not".
Nivx *-(i)ləyə-* "not".
Lit.: Ankeria 1951, 131; Bouda 1952, 38: Ch + FU + Yuk; Mudrak 2004: ChK + Yuk + Nivx..

4. ChK **'ălăkvi* "dirty" (M 31)
BF **loka* "Schmutz" | Lp N *loakke* "sediment" (SKES 301)
Lit.: Bouda 1955, 297: Koryak + Fi.

5. ChK **'əm'jă* "rowan-tree / Sorbus" (M 33), cf. ChK **mic(Ral)* "rowan (berry)" (F 174)
FU **emćз* "raspberry bush" (CG 411) = **äŋзćз* "Himbeere" (UEW 26).

6. **'ămăŋ-* > Ch **əməŋ* "all" | K: W *m(i)nił* "all, many, much" (M 32) = ChK **əmə(l)* "all" (F 342, but It *monil* (Bogoraz) etc. confirms the reconstruction of two nasals)
FU **mone* "viel" (UEW 279).

7. ChK **'ən[š]ə* "fish" (M 34) = ChK **ənnə* < **ənjə* "fish" (F 345)
U **ončз* "Njelma-Lachs" (UEW 339) = **unča* (X #149)
Yuk: S (Pallas) *onuča* "Cyprinus labeo" (Kecskeméti 1968, 36).

8. ChK **'əveke* "daughter, girl" (M 35)
FU **ewkkз* "alte Frau; Grossmutter" (UEW 76)
Note: The semantic difference has analogy e.g. in Latin *avus* "grandfather" vs. Old Irish *áue* "grandson".

9. ChK **'is-* "to be" > Ch **it-* | K **'is-/*'iɬ-* (M 55) = ChK **it-* "to be, happen, do" (F 103-04)
FV **isз* "sitzen, sich setzen" (UEW 629).

10. ChK **'ikăm* "short" (M 54) = ChK **(c)ikmə-* short (F 95)
Sm **kə̂jm* "kurz" (SW 51)
Yuk: S (Jochelson) *keibe-* "dünn sein" (Angere 1957, 110), (Klička) *keiwei*, (Billings) *keivy* "dünn" (Schiefner 1871, 378).
Lit.: Bouda 1961, 355: Ch + Sm; 1965, 170: ChK + Sm.

11. ChK **'i(k)^{w}* "to drink water"> Chuk *ikwici-*, Koryak *iwwici-*, Palan *iwhisi*, Alyutor *iw'ici-* "to drink" | K **'i'(j)* "water" (M 56); = Ch **iwɣici-* "to drink" (F 105)
FU **juxi-* "to drink" (S 543); cf. U *joke* "Fluss" (UEW 99)
Nivx *ī* "river" (Tailleur 1963, 120: Nivx + K + Chuk *iu-/eo-* "to dissolve")

12. ChK **'heqe* "bad, evil" (M 48) = ChK **Ræqæ-* "bad" (F 264)
BF **äkä* "Zorn, Bosheit, Groll" (SKES 1871)
?Yuk.: Chuvan (Matjuškin) *ekčeŋ* adv. "wenig" (Angere 1957, 55)
Lit.: Bouda 1952, 27: Chuk + Fi.

13. ChK **'nətnə* "horn" > Ch **rъtnъ* | K **'ə̆nten* (M 99) = ChK **rətnə* "horn" (F 259)
U **aŋtɜ* ~ **oŋtɜ* "Horn" (UEW 12-13)
Yuk.: N *onmur* "horn, antler, tooth, tusk (ivory) of walrus and mammonth", S *önmu* "Horn" (Angere 1957, 198).

14. Ch(K) **cəq-* "cold" (F 53)
FU **ćaka* "Treibeis; dünnes Eis" (UEW 29) or U **ćäke(-rɜ)* "harter Schnee" (UEW 31)

15. ChK **ɣənŭ* "center, middle" (M 39-40) = ChK **kənun* "middle" (F 150)
FU **kunɜ* "Bauch" (UEW 208)
Lit.: Bouda 1952, 31: ChK + Komi.

16. ChK **ɣĭl* "ice" (M 42) = ChK **kil(kil)* "ice" (F 137)
FP **külmä* "(to be) cold" (UEW 663)
Lit.: Greenberg 2002, 76-77: Ch + FP.

17. ChK **ɣъlɣъ-* "skin" (M 40) = ChK **kəlɣə* "skin" (F 145)
FU **kaľwɜ* "Häutchen, Membran, Schuppe" (UEW 121)
Lit.: Greenberg 2002, 147: ChK + FU + Eskimo **qiluɣ-* "bark".

18. ChK: Ch **ɣъrɣo-ła* "peak, top of mountain" | K **kətx-* "altus" (M 40: ChK **ɣъčɣŏ-*) = ChK **ɣərɣol(a)* "top" (F 90)
FP/FV **korkɜ* "hoch" (UEW 672)
Yuk: N *qarq-iľ* "precipice, steep hill" (Nikolaeva 1988, 245, #130)
Lit.: Bouda 1952, 30: BF + Ch.

19. ChK **ɣъv* "stone" (M 41-42) = ChK **ɣəv(ɣəv)* or **kəv(kəv)* "stone" (F 93)
FU **kiwe* "Stein" (UEW 163-64) = **kiwi* "stone" (S 543)
?Yuk: N *xei-ł* "Stein" (Angere 1957, 253)
Lit.: Ankeria 1951, 134; Bouda 1952, 24: ChK + FU; Greenberg 2002, 158: ChK + FU + Yuk + Eskaleutan **kew* "rock".

20. ChK **ɣъso* "hip, flank" > Ch **¦ъto-l* | K **kasŏ-ŋ* (M 41) = ChK **ɣəto* "side" (F 92)
FP **kaska* "Kreuz, Mitte des Körper" (UEW 648)

21. ChK **ɣъ̲tka* "foot" (M 41) = ChK **kətka* "foot or leg" (F 154)
FU **käte* "hand" (UEW 140)

22. ChK **jeɣ^{w}ši* "year, cycle" (M 98)
FU **jikä* "Alter, Jahr" (UEW 98) = **ikä* "year; age" (S 541)

23. ChK **jəhĭlyə* "moon" (M 60); cf. **(ʔъ)lha* "sun" (M 81) = CHK **jəRilyən* "moon" (F 124)
U **jelä* "Licht, Sonne, Tag" (UEW 96-97)
Yuk **jelondja* "sun" > S *jeloʒe* "sun", Old SYuk (Billings) *yelónsha*, Omok *junałdi* id. = **julandi*, cf. Chuvan *olai* "he burns" (Tailleur 1962, 81, #194; 1959, 88, #66).

24. ChK **jəlɣ$^{(w)}$ə* "knuckle, finger" (M 61) = ChK **ðəlyə* "finger" (F 68) or **jəlŋə(yərŋən)* "joint" (F 120)
FU **jalka* "Fuss, Bein" (UEW 88-89) = **jɨ̈lkå* "foot, leg" (S 543)

25. ChK **jɣ̲tъ* "to get, bring, carry" (M 62) = ChK **ðæt-* "to bring" (F 57)
U **jutta-* "ansetzen, anstückeln, hinzunähen, verbinden" (UEW 106)
?Yuk: S *jotni-* "führen, lenken" (Angere 1957, 102).

26. ChK **kĕj'(v)-ke* "birch-sprout" (M 68)
U **kojwa* "Birke" (UEW 169) = **koxjá* "birch" (S 537)

27. ChK **keləha* "evil ghost, devil" (M 68) = ChK **kælæ(R)* "evil spirit" (F 130)
FU **kolja* "böser Geist" (UEW 173)
Lit.: Bouda 1952, 25: Chuk + FU.

28. ChK **kənyə-* "to burn" (M 69) = ChK **kænγ(æt)-* "to burn" (F 132)
FV **keŋä* "Frühling, Sommer" (UEW 659)

29. ChK **kəjĕ-* "to awake" > Ch **kəjev-* id. | K **te-kej-* "surgere e lecto" (M 71) = ChK **kəjæv-* "to wake up" (F 144)
U **koje* "Morgenröte" (UEW 167)
Lit.: Bouda 1952, 26: Chuk + U.

30. ChK **kiγ(kiγ)* "thunder" (F 137)
Sm **kə̆jŋ* "Donner" (SW 51)

31. ChK **kĭľimyə* "mosquito; humble-bee" (M 75) and / or ChK **keľtĭ* "mosquito" (M 68)
FU **kiľe* "Insekt" (UEW 156)

32. ChK **kinŭ* "navel; flesh (of belly)" (M 75); cf. It *kyn* "navel" (F 137)
U **küńɜ* "navel" > FU **küŋ-kɜ* > Permian **gógɜ* id. (Napoľskix 1995, 170-72) | Sm **küŋ* (SW 79) = **küń* (H #572)

33. ChK **kojlŏ* "high, tall, vast" (M 76) = Ch **kolo* "very (big)" (F 139)
FV **küljä* "weit, breit" (UEW 663)
Nivx *kəl-* "long"
Note: Cf. Dr **kōlu* "long, large" (DEDR 2239) ||| Alt **k$^{(ʻ)}$i̯ol$^{(ʾ)}$o/*k$^{(ʻ)}$i̯ul$^{(ʾ)}$o*: Mong **kolo* "far" (KW 182) | MKor **kìr-* "long" (EDAL 695).

34. ChK **kučkə* "crow-god" (M 76) = ChK **k/quôkəl* "Raven (legendary creator)" (F 140)
FP **kočka* "Adler" (UEW 668) = **kočka* "eagle" (S 552)

35. ChK **kъCyъ* "dry" (M 74) > Ch **kъryъ* id. | It **k'izγi* id. = ChK **kəryə-* "dry" (F 150)
U **kuśka* "trocken" (UEW 223) = **kośkɨ-* (S 537); cf. also FP **koksɜ* id. (UEW 670)

36. ChK: Chuk *kuv* "wide" or Ch **kəvu-* "big" (F 156) and / or *kuu, koo* "big" | K: S *kuun* "big, high" (Worth 1962, 590)
FU **kawka* "lang" (UEW 132)
Lit.: Bouda 1952, 24: Chuk *kuv* + FU; 26: Chuk *kuu, koo* + Fi *koko* "Grösse"; Mari *ku¦u, ko¦o* "gross".

37. ChK **l/ɬeŋ-* "brother" (M 86)
BF: Finnish *lanko* "husband of sister; younger cousin", Eston *lang* id. etc. (SKES 274).

38. ChK **ləyi* "to know (truth)" (M 79-80) = ChK **ləyi* "true or known", **ləyæl-* "to recognize" (F 161-62)
U **luke* "zählen, rechnen; Zahl, Anzahl" (UEW 253) = FU **luki-* "to count" (S 545)
Lit.: Greenberg 2002, 38: ChK + FU.

39. ChK **ləy^{ʷ}ju* "nephew" (M 80) = ChK **əlləvjo* "nephew or niece" (F 340)
U **läwä* "(jüngeres männliches) Familienglied" (UEW 242)

40. ChK **ləqət-* "to go away" (F 247) = ChK **'ələqt-* "to run away" (M 32)
FU **läkte-* "weg-, hinausgehen" (UEW 239-40)
Lit.: Greenberg 2002, 107: Chuk + FU.

41. ChK **lovъ* "to suck" (M 83) = ChK **lov(ə)-* "to suck" (F 161)
FV **lüpsä* "Milk; melken" (UEW 295)
Lit.: Bouda 1952, 36: Chuk + FV.

42. ChK **lŭlhe* "ankle" (M 84)
Ug **lɤlkɜ* "irgendein Glied" (UEW 865)

43. ChK **łeqeł* > Ch **imłeqcuke* "ermine" | K **lek'es* "marten" (M 86) = ChK **imjæqcuk(æ)* "ermine" (F 98 included here It *i'naq* "ermine")
U **luk(k)ɜ* ~ **łuk(k)ɜ* (Illič-Svityč II, #270) > Mari *luj*; mansi *loj-sa* "marten" | Sm **lokɜ* "fox" (SW 84)
Yuk (Pallas) *lukipondscha* "Mustela Ermineum" (Kecskeméti 1968, 36).

44. ChK **łijomča* "willow, poplar" (M 88); cf. K: W *łivumc*, E *livum* "poplar" (F 382)
FV **lemešɜ* "(junge) Linde" (UEW 688)

45. ChK **łъm-* "following" > Ch **(a)Lъm(ŋɨ)-* "double. again; (too) many; reserve" | K **lm-* ~ **lm-* "sequens" (M 87-88) = ChK **ləm* "again", Ch **ləmŋena-* "to follow" (F 164)
FV **lama* "(grosse) Menge" (UEW 684)
Lit.: Bouda 1952, 37: Chuk + Md.

46. ChK **malɨ-* "to sweep, rake; row" (M 90) = ChK **male-* "to wipe or sweep up" (F 169)
FP **melä* "Ruder, Steuerruder" (UEW 701)

47. ChK: Ch **macvɨ* "breast or belly of animals" (M 90: Ch + K **məzə-m* "stomach" < ChK **malъ'mɨ*) = Ch **macve* "chest" (F 168) | K: W *maljav* "breast" (Worth 1959, 110 after the records from the village Napana by V.I. Tjušov, Po zapadnomu beregu Kamčatki. *Zapiski imperatorskogo russkogo geografičeskogo obščestva po obščej geografii*, 37/2, SPb., 1906); E *ki-mševi-in* "big breasted" (Tailleur 1960, 129; F 168)
FU **mälye* "Brust" (UEW 267) = **mälki* "breast" (S 546) or FU **mɤl(j)ɜ* "breast" (UEW 289)
Yuk: S *mełut* "chest", (Billings) *melud*, Chuvan (Matjuškin) *małyt'*, Omok *mełur* id. (Tailleur 1962, 72, #107).
Nivx *moč* "sein" (Schrenck; Tailleur 1960, 129: ChK+FU+Y+Nivx).
Lit.: Bouda 1952, 15: Chuk + Yuk + FU.

48. ChK **-mə* in **γəmə* "I" (M 39) > Ch **γəm* "I" | K **kəma-*, **kmi-* "I", cf. S *ma* "me" (M 39; cf. Tailleur 1960. 137, fn. 137) = ChK **kəm* "I" (F 146)
U **mɤ̆* "ich" (UEW 294) = **mun* "I" (Janhunen 1982, 30)
Yuk: S & N *met*, Billings *mat-*, NW *mot*, Chuvan *mot(a)* "I" (Tailleur 1962, 73, #121).
Lit.: Ankeria 1951, 127: ChK + U.

49. ChK **'məCə* > Ch **wər* '' "mesh" | K **mčə-n* "maculae retium" (M 93: ChK **'mərə* "mesh")
U **maća* "Fischreuse" (UEW 263) > Mari *mača* "Fischreuse" || Selkup Ke. *maazeng*, N *mā́šek* "Netz, Zugnetz".
It seems that K **č* is primary instead of Ch **r*, cf. ChK **kъryъ* "dry" (M 74) > Ch **kъryъ* id. | K **k'izγi* id. vs. U **kuśka* "trocken" (UEW 223)

50. ChK **məlæ-* "to break" (F 182)
U **molɜ* "(zer)brechen; Bruchstück" (UEW 278)

51. ChK **məLə* > Ch**məše''* "to collect berries; edible root" | K **meł-qef* "berries, fruits" (M 94: **məše*; but ChK **š* > Ch **s* ~ K **s* in the non-final position according to M 12); cf. F 180 on It *mełkev* "edible fruits and plants"
FU **moľɜ* or **mok'ɜ* "Beere irgendeines Strauches" (UEW 279)
Yuk: S (Raiskj 1858) *malǵä* "Moltebeere" (Schiefner 1859, 251) = *malǯä* id. (Schiefner 1871, 386).

52. ChK **mit'hĕ-* "good, nice" > Ch **mịchạ-* | K **mič-* (M 95) = ChK **mitRæ-* "good" (F 178)
U/FP **mićä-* ~ **müćä-* "(zusammen)fegen. (zusammen)rechen" (UEW 274) > Livonian *mütsa-* "fegen" | Udmurt G *mić-* "zusammenschaufeln, -fegen; barbieren, rasieren"; Komi S *mić* "Schönheit", SP *mića* "schön", *mićed-* "schön machen, schucken" || Nenets O *mecāj*, S *misī* "schmuck gekleidet, sauber angezogen". Lappic Kld. *močček* "schön, hübsch" reflects the velar vocalism (UEW l.c.) or FV **majsɜ* "glatt, hübsch" (UEW 697).

53. ChK **minlŭ* "hare" > Ch **miljute* > SYuk (Suvorov) *meléta* "Hase" (Schiefner 1871, 386) | K **minł* (M 95) = ChK **milute* "hare" (F 176)
U **ńoma(-lɜ)* "Hase" (UEW 322) = **ńomå* "hare" > FU **ńomålå* | Sm **ńåmå* (S 539)
Yuk: Omok нема */ńoma/* "Hase", S *nemarái*, N *ńámi-rukun* "fur of the tail of a polar fox" (Tailleur 1959, 89, #72).
Note: Cf. Mongolian **möndele* "young of tarbagan" || Turkic **bAńi-* "hare, marmot" > Chuvash *molgaś/č* etc. || Tungusic **mundu-kān* "hare" < Altaic **mị́ónde(-le)* "hare" (EDAL 927).

54. ChK **monrъ* "palm of hand or sole of foot" (M 96) = ChK **mor* "palm or sole" (F 178)
Ug **mɤrɜ* "hohle Hand" (UEW 872)

55. ChK **muri* "we" (M 97) > Ch **muri* | K **muza* /**mizγin-* = ChK **mur(i)* "we" (179)
U **mɤ̆* "wir" (UEW 294) = **me-* (Janhunen 1982, 30)
Yuk: S & N *mit*, Chuvan *mit*, NW *mič'*, Omok *mir* (Tailleur 1962, 73, #117)

Nivx: Sakhalin *min*, Amur *my(ŋ)-gi* "we"
Lit.: Ankeria 1951, 127: ChK + U.

56. ChK **nъ̲kъ́ɬ* "nut" (M 99) = Ch **nəkəl* "nut" (F 190)
FU **nakrɜ* "Zedernuss" (UEW 298).

57. ChK **nanγ"ɨ́* "bast" (M 98)
FP **nine* "Bast, Lindebast" (UEW 707) = **ńiini* "bast" (S 553)
Yuk: S *ńańme* "Silberweide / Salix caprea" (Angere 1957, 172)
Lit.: Bouda 1952, 20: Koryak + FP.

58. ChK **nělʼγə* "skin" > Ch **na̲ɬγə̲* | K: W *xan[ś]x* (M 98) = ChK **nælγə(n)* "skin or hide"
BF **naška* or **načka* "skin" (SKES 364)
Lit.: Bouda 1952, 20: Ch + BF.

59. ChK **n¦em* "worm" (M 99) = ChK **ənγæm* "worm" (F 343-44)
U **ńi(w)ŋɜ* "Made, Wurm" (UEW 320) = **ñiwŋe* "worm" (CG 408) < **ńimŋɜ*?

60. ChK **ŋeʼmə-sqə* "woman", **ŋev-ət΄* "female" (M 101) = ChK **ŋæv* "woman", **ŋævəcqæt* "young woman" (F 195-96)
U **ńiŋä* "woman" (CG 408) =**niŋä* "Frau" (UEW 305)
Nivx: Amur *(ń)um-gu* "woman".

61. ChK **ŋelvə* "herd of reindeers" (M 101) = Ch(K) **ŋælvə* "herd, flock" (F 194-95)
U **ńeplɜ* "Rentierkalb" (UEW 316).

62. ChK **ŋu-* "that" > Ch **ŋun-* | K **nu(w)* (M 105) = ChK **ŋun* "over there" (F 199)
U **no* "jener" (UEW 306).

63. ChK **păk* "fledgeling, little bird" (M 106) = ChK **pikpik* "fledgeling" (F 215)
U **päke* "eine Art Raubvogel" (UEW 361)

64. ChK **penke* "cap" (M 108) - perhaps **pen-* + *-ke* (cf. **kěj'(v)-ke* "birch-sprout") = ChK **pæŋqæ(l)* "hat" (F 212-13)
U **päŋe* "Kopf" (UEW 365) = **päŋi* "head" (S 548)
Lit.: Ankeria 1951, 133: K + U.

65. ChK **panša* (M 107) > Ch **panša-* "Renntierbeinfell" | K **pănz[a]-* "e pellibus pedum cervi tarandi factus" = ChK **panôa* "leg skin of reindeer" (F 208)
U **ponča* > Khanty O. *posəχ* "Schuhfuss" (UEW 394) | Sm **päncå* ~ **pencå* "Beinling" (SW 118)
Lit.: Bouda 1965, 162: Ch + Sm.

66. ChK **peqə-* "to run on four feet" (M 108)
BF **pakene-* "to run away", **pakoi* "flight, run" (SKES 470; Illič-Svityč I, #15), cf. U **pukta-* "laufen, hüpfen" (UEW 402)
?Yuk: S (Jochelson) *pogi-* "laufen" (Angere 1957, 209)
Lit.: Bouda 1952, 6: Ch + BF.

67. ChK **pəl-* "good; big" (M 109) = ChK **pəl-* "completely" (F 420)
U **paljɜ* "dicht; dick" (UEW 396; CG 408)
Lit.: Ankeria 1951, 133-134: K + U.

68. ChK **pəne-* "to sharpen, whet; grinding stone" (M 109) = ChK **pənæ-* "to sharpen" (F 223)
FU **pänɜ* "wetzen; Wetzstein" (UEW 365) = **pänV-* "to grind" (S 548)
Lit.: Bouda 1952, 10: Ch + FU; Greenberg 2002, 143: Chuk + FU.

69. ChK: Ch **parʼʼ* "shoulder-blade" | K: W *paspas*, pl. *paspad* "scapula"; S *'ipət* "homoplata, scapula" (M 107: ChK **panrə* reconstructed on the basis of Itelmen *paŋza* "armpit", but it is apparently a different word) = ChK **parət* "shoulderblade" (F 209)
U **peδpä* "Schulterblatt" (UEW 368)
Note: Alternatively ChK **vъlʼ'pa-* "shovel" (M 151) could be a cognate of the U word.

70. ChK **pъhona* "mushroom, fungus" (M 110) = ChK **pəRon(a)* "mushroom" (F 225)

FU **paŋka* "eine Art Pilz - Fliegenpilz /Agarius muscarius" (UEW 355) = **pɨŋkå* "mushroom" (S 547)
Lit.: Bouda 1952, 7: Ch + FU.

71. ChK **puje* "to bake by smoke, steam" (M 114) = ChK **pujæ-* "to smoke, steam" (F 218)
U **peje-* "kochen, sieden" (UEW 368)

72. ChK **'pas^{w}ъ* "hole" (M 107)
U **paśɜ* "Loch, Öffnung, Spalt, Riss" (UEW 357) = **pośa* "hole" (X #213)
Lit.: Bouda 1970, 131: K + U.

73. ChK **qə̆mle* "marrow" (M 118) = ChK **qəməl(a)* "marrow" (F 245)
Sm **kåjmå* "Knochenmark" (SW 58).

74. ChK **qɨ̆nhə-* "raging" (M 119)
Ug **kɤ̆ntɜ* "zornig; Gemüt" etc. (UEW 861).

75. ChK **q^{w}ĕlyə-* "crow" > Ch **welvə* | K **qɬh* id. (M 122) = ChK **wælvə* "raven" (F 326)
U **kulɜ(-kɜ)* "Rabe" (UEW 200) = **kula* "crow" (X #207).
Yuk (Pallas) *kaeli* "Corvus corax" (Kecskeméti 1968, 36).
Lit.: Bouda 1970, 130, fn. 1: K + Ug.

76. ChK **sĭyə-* "sledge; ski" (M 127) = ChK **teɣəlŋən* "ski" (F 283 speculates about a loan from Sm: Nenets *takeš* "snowshore")
U **sukse* "Schneeschuh" (UEW 450) = **suksɨ* "ski" (S 540)
A: Tg **sūksi-* "ski"
Note: Alternatively U **sajkɜ/*śajkɜ* "Schneeschuh / Ski (laufen)" (UEW 429) may be compared with ChK **sĭyə-* "sledge; ski".

77. ChK: Ch **šileqe* "backbone, spine, ridge, sceleton" (M 24: Ch + K **k-čęč* "front" < ChK **čil''e-*) | K: NE & Uka *šalk*, S *sakky*, W *šaalikin*, Karaga *kal yšilky* "en arrière" (Worth 1962, 593, #3.22; F 110: It *salke* "back" etc. < ChK **javal(a)*)
FV **šelkä* "Rücken" (UEW 772)
Lit.: Bouda 1952, 42, #367a: K + Fi & Lp.

78. ChK: Ch **yə-t* "thou" (Mur 165) = Ch **yə-š*, obl. **yə-n-* | K **kəʒa*, poss. **kni-* < ChK **yəšə*, obl. **yən-* (M 40) = ChK **kəð* "you", abs. **ən(no) & *ət(ði)* (F 142-43)
U **tun* ~ Ob-Ug **näɣ/*nĕɣ* "thou" (Honti) & the 2sg verbal marker U**-t* ~ Komi, Ob-Ug, Sm **-n* (Janhunen 1982, 34-35)
Yuk: S & N *tet*, (Witsen) *tot*, (Billings, Majskij) *tet, tat*, Chuvan (Matjuškin) *tota*, Omok *ti-* id. (Tailleur 1962, 78, #170).
Lit.: Ankeria 1951, 127: ChK + U.

79. ChK ** tə̆Lvu-* "to blow (on wind)" > Ch **təttu-* | K **t'lu-* (M 138: ChK ** tə̆svu-*) = ChK **təltu-* "to blow" (F 303)
FP **tuuli* "wind" (S 554) = **tule* "Wind" (UEW 800).

80. ChK **tałe-* "to walk" (M 136) = ChK **təlæ-* "to go", **təlanvə* "way" (F 295)
U **tule-* "kommen" (UEW 535) = **tolɨ-* "to come" (S 540)
Lit.: Bouda 1952, 18: Chuk + FU; cf. Greenberg 2002, 39.

81. ChK **təlyə* ~ **'t-* "skin; scale" (M 136) = Ch **təlyətəl* "scale" (F 296)
U **talja* "Haut, Fell" (UEW 508-09)
Lit.: Ankeria 1951, 135: K + FU.

82. ChK **tənu(-m)* "trunk, stem" (M 137)
FU **tüŋe* "Stammende, dickes Ende des Baumes" (UEW 523) = **tüŋi* "base" (S 550)
A: OTk *töŋöre* "a tree trunk" | Mong *tüngke* "overgrowth of feather grass || Koryak (!) *tuŋk* "Stammende, dickes Ende des Baumes" (UEW 523).

83. ChK **turi* (pl.) "you" (M 145-46) = ChK **tur(i)* "you" (F 291)
U **tĭ* "ihr" (UEW 539) = **te-* "you" (Janhunen 1982, 30)
Yuk: S & N *tit*, Omok *tip* "you" (Tailleur 1959, 86, #49)

Lit.: Ankeria 1951, 127: ChK + U.

84. ChK **vě'me-* "guest" (M 149; F 367: only K)
U **wäŋe* "Schwiegersohn, Brätigam" (UEW 565).

85. ChK **vilu-* "ear" > Ch *viłu-* | K **'ẹlwẹ- /'il(u)-* "ear" (M 152), **vělu-m-* "to hear" > Ch **valo-m-/*palo-m-* | K **'ilfś(ə)-* id. (M 149) = ChK **vilu* "ear" & Ch **valom-/*palomtel-* "to hear" (F 317, 208, 313)
FU **peljä* "Ohr" (UEW 370; S 547)
Lit.: Bouda 1952, 13: Chuk + FU.
Note: K of Karaga *fljufi* "ear" (Worth 1962, 588) indicates ChK **γʷilju-*, compatible with FU/U **kule-* "hören; Ohr" (UEW 197) = FU **kuulõ-* "to hear" (CG 412) = FU **kuuli-* id. (S 544) || OYuk *golendži* "ear" (Pallas) = *golendschi* (Ermitage ms.). Sm **kåw* "Ohr" (SW 62) included with the question-mark in UEW is better to relate with FP **kovra* "ear" < U **kåwɨ* (S 538). The Nostratic reconstruction independently proposed by Illič-Svityč (1967, 366), namely **q̇iwlʌ* "to hear", perfectly agrees with the modified ChK reconstruction **γʷilju-*. Summing up, it seems, there were two different etymons in ChK, **γʷilju-* "ear", and **p/vělu-m-* "to hear", corresponding to FU **ku(u)li-* "to hear" and **peljä* "ear" respectively.

B. Cognates between Chukcho-Koryak and Uralic, including its partial branches.

86. Ch **ạčhə-* adj. "fat" (M 154) = Ch **æcRən* "fat" (F 25)
FP **ičɜ* "dick; gross" (UEW 627)
Lit.: Bouda 1952, 40: Ch + Md.

87. Ch **ạkkạ* "son" (M 155) = **ækək(æ)* "son" (F 31)
U **(j)ɤ̈kɜ* ~ **(j)ɤ̈γɜ* "Sohn; Junges" (UEW 109) and / or Ug **äkɜ* (UEW 835).

88. Ch **ełve* "other" (M 160) = ChK **ælvæ-* "other, different" (F 32); cf. Chuk *aləm* "one of a pair, paired thing"
Ug **älmɜ* "andere Seite" (UEW 836)
Nivx: Amur *alv-erq* "behind, on the other side", Sakhalin *alγa-f* id.
Lit.: Greenberg 2002, 126: Chuk + Nivkh + Eskimo **aləR* "other etc.

89. Ch **cɨR-* "(to become) grey, yellow" (M 159; cf. F 47)
FU **ćerɜ*"grau" (UEW 36); but cf. Sm **sẹr* "weiss" (SW 138)
Yuk: (S) *šorune-* "white", *šoriłe* "painture" (Tailleur 1959b, 418).

90. Ch **γəm-* "heavy, hard"
?U/FU **kämä* "hart, fest" (UEW 137)
Yuk: S *kim-d(i)eš-* "all seine Kraft entwickeln, sich anstrengen"
Lit.: Bouda 1965, 169-70: Ch + FU.

91. Ch **həmu-* "weak" (M 168) = Ch **Rəmu-* "weak" (F 272)
U **oma* "alt, vorig, vorherig" (UEW 337).

92. Ch **jet-* "to come" (M 175) = Ch **jæt-* "to come" (F 112)
U **juta-* "gehen, wandern" (UEW 106).

93. Ch **jəłki-* "thunder" (M 175)
BF: Ob-Ug **jĭləγ* "donnern" (Honti 1982, #188); cf. Fi *jylinä* "thunder", *jylistä* "to thunder"; LpN *jullât* id. (SKES 127)
Lit.: Bouda 1952, 33: Chuk + Fi.

94. Ch **kalal* "горбуша = Buckellachs" (M 177), cf. also Alyutor *kil-ľalŋyn* "Fischlaich" vs. Chuk *lälgyn*, Koryak *lälŋyn* "Laich" = Ch **kalal(e)* "humpback salmon" (F 126-27)
U **kala* "Fisch" (UEW 119) = **kålå* "fish" (S 538)
Yuk: N *xaldawa* "scale of fish" < **xal-* *"fish" & *sawa* "skin" (Kornilov, G.N., *Složnye imenna suščestviteľnye v jukagirskom jazyke*, L. 1977, 117: Yuk + U)
Lit.: Bouda 1952, 25: Ch + FU.

95. Ch **kiwle-* "dried blood" (M 182) = Ch **kiwəl* "clotted blood" (F 139)
U **kälɜ[w]* "(geronnenes) Blut" (UEW 134)

Lit.: Bouda 1961, 354: Ch + Mansi.

96. Ch **kъwwat-* "to dry" (M 181) = Ch **kəwwa(t)-* or **kəɣwa(t)-* "to dry up" (F 144)
FU **kujwa* "trocken" (UEW 196-97)
Lit.: Bouda 1952. 24: Koryak + Fi.

97. Ch **kušyə-n* "spider" (M 183)
U **kočŋa* "ant" (X 130) = **kočŋɜ* id. (CG 406) = **kučɜ*"Ameise" (UEW 192-93).

98. Ch **Lewtə* "head" (M 185) = Ch **lewtə* "head" (F 158)
BF **latwa* "top of mountain or head, crown" (SKES 280)
Lit.: Bouda 1952, 36: Chuk + Fi.

99. Ch **mata-* "to marry" (M 186), cf. Chuk *mata-lən* "Nächster, Verwandter, Schwiegervater" = Ch **mata-* "to take as wife" (F 171)
U **mättɜ* "Haus, Zelt, Hütte, Familie" (UEW 269)
Lit.: Bouda 1952, 14: Chuk + Udm.

100. Ch **mik* "who" (M 96: Ch + K **k'e* "who"); cf. ChK **meŋ-* "which", Ch **miŋke* "where", K **mankə-* "what, which" (M 92, 95) = Ch **mikæ* "who", ChK **miŋ(kə)* "where", **miŋkəði* "how" (F 175-77)
U **mɜ* "was"; cf. Fi *mikä*, gen. *minkä* "welcher, was für ein" (UEW 296)
Yuk: S (Jochelson) *migíde* "hierhin" : *xaŋide* "wohin" : *taŋide* "dorthin"; *mucin* "verschiden, allerlei" (Angere 1957, 158, 252, 234, 167; Tailleur 1959b, 416-17, fn. 19)
Lit.: Ankeria 1951, 128: ChK + U.

101. Ch **mъkъ''* "морскóй конёк, корюшка" (M 187); cf. K: W *myk* "kind of salmon", *mykumci* "salmon trout / Salmo kunscha" (F 386)
FU **mъktɜ* "eine Art Fisch" (UEW 295) = FP **müktV* "fish species" (S 553)
Yuk: N (Krejnovič) *muoqaŋ* "чир" (cf. Tailleur 1959b, 419)
Nivx: W *mykyk* "bréme", (Schrenk) *mykkyk* "Idus Walackii" (Tailleur 1960, 129: ChK + Nivx + Yuk + Komi)
Lit.: Bouda 1952, 14: Chuk + FU.

102. Ch **nəŋceɣ* "poplar; willow" (M 188) = Ch **nəŋceɣ* "poplar" (F 191)
FP **ńolkɜ* ~ **ńalkɜ* "elm" (UEW 715)
Yuk: S *nolu-* "Rotpappel"
Lit.: Bouda 1952, 23: Chuk + Yuk + U **ńulkɜ* "Weisstanne" - see UEW 327.
Note: The Chukotkan starting point could be **nəɣceɣ*, cf. Chukchee *nəɣcek*. Ch **-c-* is derivable from **-l-*, cf. Ch **macve* "chest" ~ U **mälye* "breast" or FU **mɤl(j)ɜ* id. (UEW 267 or 289).

103. Ch **nъnnъj* "name" (M 189) = Ch **nənnə* "name" (F 191)
U **nime* "Name" (UEW 305) = **nimi* "name" (S 538)
Yuk: (Witsen) *nim*, (Billings) *neve*, (Rajskij) *niw*, (Suvorov) *nyw*, (Jochelson) *níu*, Chuvan (Matjuškin) *nyva* "name" (Tailleur 1962, 74, #125)
Lit.: Bouda 1952, 21: Chuk + FU.

104. Ch **pajaka* "calf of the leg" (M 192) = Ch **pajaqa* "calf (of leg)" (F 207) or Ch **pecki-* "reindeer's shinbone" (M 193) or Ch **patke* "thigh bone of reindeer" (F 209-10)
U **počka* "Schenkel" (UEW 389) or **poška* "Wade" (UEW 396)
Yuk: N *pökči-d-ö* "muscles (of leg)" (Nikolaeva 1988, 242, #116)
Lit.: Bouda 1952, 8: Ch **pajaka* + U **počka*.

105. Ch **pelqet-* "to grow old" (M 193) = Ch **pælqæt-* "to grow old" (F 211)
FP **pälä* "Zeit" (UEW 726)
Yuk N *pälur*, S (Jochelson) *polut/d* "Alter, Greis" (Angere 1957, 211-12)
Lit.: Bouda 1952, 7: Ch + Yuk.

106. Ch **pəlHə-* "to flow" (M 194) = Ch **pəlRə(lRæt)-* "to flow" (F 220)
Ug **pɤlɤ-* "quellend fliessen" (UEW 881)
Lit.: Bouda 1952, 9: Chuk + Hu.

107. Ch **puq-* "bottom; back" (M 195) = Ch **puq* "bottom or behind" (F 219)
U **pujз* "Hinterteil" (UEW 401) = **puwз* (CG 408) = FU **puwi* "behind" (S 547) > FU **pūke-* | Sm **puə-* (Sa #141)
Lit.: Bouda 1952, 8: Chuk + FU.

108. Ch **qaLmə* "unlucky, unhappy" (M 196)
U **kalma* "Leiche; Grab" (UEW 119)
Lit.: Bouda 1952, 28: Chuk + U.

109. Ch **qъmja-* "hoarfrost" (M 198)
U **kumз* "dünner Schnee" (UEW 204) = FU **kumi* "rim, frost" (S 544)
Yuk: Omok *ku* "snow" (Tailleur 1959, 89, #82).

110. Ch **qъCvo* "cedar" (M 198: **qъrvo''*), cf. Koryak *qasv*, *qysv*, *qyčvo* "Zeder, Zirbelkiefer" (Bouda 1961, 356) = Ch **qərvo* "dwarf Siberian pine / Pinus cembra" (F 246)
FU **koča* "eine Art Nadelbaum" (UEW 165) or FU **käč(ŋ)з* "Wacholder" (UEW 133).

111. Ch **šъLyъ-* "finger" (M 203) < ChK **š-* / **č-* or K: E *soto* "hand, arm", Uka *šotong*, $S_{Radlińskı}$ *šetu*, pl. *šitut* "hands", *šoten* "palm" (F 350-51), cf. ChK **ðəlyə* "finger" (F 68) or **jəlŋə(yərŋən)* "joint" (F 120)
U **suδ'з*"Finger" (UEW 449) = **suwď'å* "finger" > FU **s/śuwď'å* | Sm **tə̂jå* (S 540).

112. Ch **tok* "give!" (M 209); cf. K: W *ti* "to bring, take" (Worth 1969, 254)
FU **toxi-* "to bring" (S 550) = **toγe-* "bringen, holen, geben" (UEW 529); cf. Sm **tə̂-* "bringen, geben" (SW 145; H 347).
Yuk: S+N *tadi-* "to give, sell" (Angere 1957, 233)
Lit.: Greenberg 2002, 79: ChK + FU + Yuk.

113. Ch **tur(ji)-* "new" (M 210) = Ch **tur-* "new" (F 291)
BF **toorз* "fresh" (SKES 1409-10)
Lit.: Bouda 1952, 17: Ch + BF.

114. Ch **[v]ačəmə* "reindeer" in Chuk *ta-ačyme-nta* (hiatus between *aa* indicates a lost glide), Koryak *čočč-ačymy-nta*, Alyutor *torj-asymynta* "vierjährige Rentier(kuh)" < **torje-[v]ačəmə*, lit. "young reindeer" = Ch **toracəmənta* "four-year-old (male) reindeer" (F 289)
FV **wača*, **wačimз* "Rentierkuh; Fohlen, Füllen" (UEW 806)
Lit.: Bouda 1952, 13: Ch + FiLp.

115. Ch **vət-yər* "space between" (M 212) < ChK **?q^{w}ət-*, cf. also Chuk *vut-lät* "zwischen Tundra und Meeresküste nomadisieren" = Ch **vətyər* "middle or space between" (F 321)
FU **kütз* "Mitte, Zwischenraum" (UEW 163)
Lit.: Bouda 1952, 24: Ch + Ug.

116. Ch **vitku* "first, for the first time" (M 212) = Ch **vitku* "only then" (F 318)
FV **wikta* > Fi *vihdoin* "endlich, yhden kerran"; Md **(v)ukta* "hinter" (SKES 1734-35; Keresztes 1986, #516). cf. Welsh *cyntaf* "der erste" vs. Old High German *hintana* "hinter".

C. Cognates between individual Chukcho-Koryak languages and Uralic, including its partial branches.

117. Chuk *ənan* "sehr" (cf. the emphatic prefix *ənan-* "most", attested in Chukchee, Kerek, Koryak, Alyutor (F 343 connects it with the ChK pronoun **ən(no)* "he/she/it")
U **enä* "gross; viel" (UEW 74)
Lit.: Ankeria 1951, 131: Chuk + U; Greenberg 2002, 105: Chuk + U.

118. Chuk *čymjy* "bitter, herb" < ChK **(-c-)əmjə-* "bitter" (F 341)
FU **čemз* "sauer (werden)" (UEW 56)
Lit.: Bouda 1952, 41: Chuk + FU.

119. Chuk *pyčiqä, pyčeqa* "eine Art kleiner Vogel, Bachstelze" < ChK **pəciq(æ)* "bird" (F 219)
FU **päćkɜ* "Schwalbe / Hirundo rustica" (UEW 358; CG 413)
Lit.: Bouda 1952, 8-9: Chuk + FU.

120. Chuk *pylm* "dunkel" < Ch **pəlmə-* "(to be) dark from snow or rain" (F 222)
U **piľmɜ* "dunkel (werden)" (UEW 381-82; CG 408)
Nivx *polm* "to be blind"
Lit.: Bouda 1952, 7: Chuk + FU; Greenberg 2002, 46: Chuk + U + Nivx.

D. Cognates between Kamchatkan (Itelmen) and Uralic, including its partial branches.

121. K: NE *eeľ* "mountain", W *aala* id., S *eel / aal* id. (Worth 1962, 584; F 357)
U **älɜ* "heben, tragen" (UEW 24)
Lit.: Greenberg 2002, 15: K + U.

122. K: W *isx* "father", *isxe'n* "parents", E *isxekesx* "father-in-law" (Worth 1959, 35; F 348 connects it with Chuk *ətləyən* "father" etc., but there is perhaps better cognate in K: S *ilx* "husband"; similarly M 32: ChK **'ələγ-*)
U **ićä* "Vater" (UEW 78)
Yuk: S *ečie*, Chuvan *ete* "father", Omok *ez-e-m* "my father"
Nivx: E Sakhalin *yz-ŋ* "father"
Lit.: Greenberg 2002, 65-66: K + U + Yuk + Nivx.

123. K: NE *kallaka*, S & W *kalka* "penis" (Krašeninnikov; Worth 1959, 112, #6.2); cf. Ch **həlqe* "penis" (M 168) < ChK **qəlqæ* "penis" (F 245)
FP **kaľkkɜ* "Ei; Hoden" (UEW 644); cf. also U **koľe* "Hoden" (UEW 175).

124. K: E *kaaš* (Krašeninnikov), *kas* (Saryčev); W *kasx* (Radliński), Sedanka *qasx* (Moll), Tigil R. *katxan* (Billings by Saryčev), S *kaass* (Krašenninnikov), *kaz* (Radliński) id. (F 397; M 77: K **kasx* "2" + Ch **vacqъ* "second, last" < ChK **k^{w}asqъ*)
U: FP **kakta*, Ug **käktä* (UEW 118-19; S 537: U **kektä*); Sm **kitä* "2", dual **kitäkə̑* "both" (SW 71). It is tempting to think about the original structure **ket(ä?)* + dual **-kä*, with the following metathesis **-tk-* > **-kt-* perhaps caused by the preceding numeral **ükte* "1" (see Blažek 1999, 90-91).
Lit.: Ankeria 1951, 137: K + U.
Note: The correspondence of K **-sx* to FU **-kt-* (< **-tk-*?) has analogy e.g. in K: S *kasxc*, pl. *kasxadac* "shin" : Uka *katxad*, E *ketxed* "feet" || Ch: Chuk *yətjalyən*, Koryak, Alyutor *yətkalŋən*, Kerek *həttaaŋa* "foot, leg" < ChK **kətka* (F 154) = **γ̲tyă-* (M 41).

125. K: E *kelk* "to come, appear", W Khairuzovo *k'ölkəŋin*, Sedanka *qölkeŋin* "he came" (F 358)
FU **kälä-* "waten" (UEW 133-34) or U **kulke-* "sich bewegen, gehen" (UEW 198)
Yuk: S *kel(u)-/kolu-* "to come, go"
Lit.: Greenberg 2002, 39: ChK + FU + Yuk.

126. K: NE *kidx* ~ *kudex* "sister's son" (Radliński; Worth 1959, 38)
FU **küδɜ* "Schwager" (UEW 154).

127. K **k'e* "who" (M 96; cf. F 175)
U **ke* "wer" (UEW 140)
Yuk: (S) *kin* "who", (N) *kinek* "who, somebody" = Finnish *ken* (Jochelson; Angere 1957, 118; Tailleur 1959b, 416)
Lit.: Ankeria 1951, 128: K + U.

128. K: W *le-* "to become, remain, come in, wish" (Worth 1969, 141); cf. Koryak 3sg. predicative *-li-n*
FU **le-* "sein, werden, leben" (UEW 243)
Yuk: N & S (Jochelson) *le-* "to be, become, live", Chuvan (Boensing) *lei* "he is, lives" (Tailleur 1962, 71, #97)
Lit.: Ankeria 1951, 133: K + FU + Yuk; Greenberg 2002, 22: ChK + FU + Yuk + EA **li-* "to become".

129. K: W **meca-* > *mécake* "far away", *mecaq* "distantly", *mecalax* "distant" (Stebnickij), *mečaan* "far-off" (Radliński), see Worth 1969, 161.

FU **mećä* "weit, entfernet" (UEW 269-70)
Lit.: Bouda 1965, 163: K + FU.

130. K: W *nenem-k* "(in) front" (Jochelson; Worth 1969, 174)
BF: Fi *nenä*, Estonian *nina* "nose"; Lp Sw *njuone* id. (SKES 372-73)
Note: Bouda 1970, 132: K + Selkup *ńennä* "Vorder-" < **ńer-nä* (SW 110).

131. K: E *pec* "son, child", Uka *peec* "son", W *p'ec*, pl. *p'e'n* "son", S *peac* "son", *peaicic* "young man" (F 357; M 34-35 adds Chuk *əppəlu-* "little")
FU **pojka* "Sohn, Knabe" (UEW 390).

132. K: W *suzc* "lizard" (Jochelson; Worth 1969, 242); E *suzuc* id. (F 376)
U **sɜŋćɜ(-lɜ)* ~ **sɜčɜ(-lɜ)* "Eidechse" (UEW 454) = **conśi-* "lizard" (S 536)
Tg. **sisel-ē* "Eidechse" (UEW 454).

133. K: W *šežen*, pl. *šizin* (sic); S *čezokoč*, pl. *čezłoxon*; also *tsizat*; NE *šozo*, pl. *šuzed* "knee" (Radliński; see Worth 1959, 111)
U **śänčɜ* "Knie" (UEW 471).

134. K: S *tekten*, pl. *tekat* "bone" (Radliński - see Worth 1959, 113, #7.2 who separated it from continuants of ChK **qətRəm* "bone" reconstructed by F 248)
FU **täktä* "Knochen, Gebein" (UEW 515).

135. K: W *tin* "this, that" (Worth 1969, 256)
U **tä/*te/*ti* "dieser" (UEW 513-14)
Yuk: S (Jochelson) *tiŋ* "this", Chuvan (Matjuškin) *tine* "here" (Tailleur 1962, 78, #164)
Lit.: Ankeria 1951, 128: K + U.

136. K: W *tme* "Leim", *ne-tmən'-łe-s* "to glue", E *in-tim-l* "glue" (F 365; Worth 1969, 258: W *tmal* "to adhere")
U **δ'ümä* "Leim" (UEW 66) = **ď'ümä* "glue" (S 537)
Lit.: Bouda 1965, 164: K + U.

2. Sound correspondences

2.1. The lexical parallels collected above allow us to formulate the following more or less probable phonetic correspondences between Chukcho-Kamchatkan and Uralic and their daughter dialects:

ChK	U	Comparisons (##)
**h- (*'h-)*	*ø*	12, 91
**-h-*	**-k-*	42
**k- (*'k-)*	**k-*	10, 26, 27, 28, 29, 30, 31, 32, 33, 34, 94, 95, 96, 97, 125, 126, 127
**-k-*	**-k-*	4, 35, 56, 64, 87, 101, 104
**-k-*	**-x- (γ)*	41, 112
**-k-*	**-kk-*	8
**q- (*q^{w}-)*	**k-*	73, 74, 75, 108, 109, 110, ?115, ?123
**-q-*	**-k-*	12, 14, 40, 43, 66, ?107
**γ- = *k-$_{L}$*	**k-*	15, 16, 17, 18, 19, 20, 21, 90
**-γ-*	**-k-*	18, 22, 24, 38, 75, 76
**γ^{w}-*	**k-*	?85
**-γ^{w}- = *-v-$_{L}$*	**-w-*	39
**-γ-*	**-w-*	17
**-γ-*	**-ŋ-*	30, 97
**ŋ-*	**n-*	62
**-nγ-*	**-ŋ-*	28
**ŋ-*	**ń-*	60, 61
**n-*	**ń-*	59, 102
**n-*	**n-*	56, 57, 58, 103

**-n-*	**-n-*	7, 15, 57, 65, 68, 74, 117
**-n-*	**-ŋ-*	?64, 82
Ch **-ŋ-* K **-n-*	**-n-*	6
Ch **-tn-* K **-nt-*	**-ŋt-*	13
**t-*	**t-*	78, 79, 80, 81, 82, 83, 113, 134, 135
**-t-*	**-t-*	1, 21, 40, 92, 98
**-t-*	**-tt-*	25, 99
**-tk-*	**-kt-*	116
**p- (*'p-)*	**p-*	63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 104, 105, 106, 107, 120, 131
**v-*	**p-*	85
**-v-*	**-p-*	41
**v-*	**w-*	84
**-v-*	**-w-*	2, 8, 19, 26, 36
**-w-*	**-w-*	95, 96, 98
**j-*	**j-*	22, 23, 24, 93
**-j-*	**-j-*	1, 2, 25, 26, 29, 71
**m- (*'m-)*	**m-*	6, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 99, 100, 101
**-m-*	**-m-*	5, 10, 44, 73, 90, 91, 108, 109, 114, 120
**-'m-*	**-ŋ-*	84
**l-*	**l-*	4, ?37, 40, 41, ?98, 128
**-l-*	**-l-*	3, 16, 23, 24, 27, 42, 46, 47, 67, 75, ?79, 81, 94, 105, 106, 121, 123
**-l-*	**-l'-*	17, 120
**-l'-*	**-l'-*	31
**-jl-*	**-lj-*	33
**ɬ-*	**l-*	?37, 43, 44, 45
**-ɬ-*	**-l-*	80, 88, 93
**-l-*	**-r-*	56
**-r- (*-nr-)*	**-r-*	54, 113
**-R-*	**-r-*	89

2.2. The most difficult task is to formulate the sound correspondences for sibilants and affricates, sometimes varying with liquids in both Chukcho-Kamchatkan and Uralic (e.g. Ob-Ugric). The present material allows to establish the following correspondences, frequently based only on unique examples:

ChK	U	Comparisons (##)
**c-*	**ć-*	14
Ch **c- < *t'-*	**ć-*	89
**-t'-*	**-ć-*	52
**-'j-*	**-ć-*	5
**-j-*	**-č-*	?104
**-c-*	**-č-*	?104
Ch **č-*	**č-*	?118
**-č-*	**-č-*	34, 86, 114
Ch **-č-*	**-ć-*	119
**š-*	**ś-*	77
**-š-*	**-č-*	77
**-č-*	**-š-*	44
**š-*	**s-*	111
**s-*	**s-*	7, 65, 97
**-s-*	**-s-*	76
**-s^{w}-*	**-ś-*	72

2.3. There are some problematic clusters and nontrivial correspondences which imply minor corrections in Mudrak's reconstructions. It seems that Kamchatkan is in better agreement with Uralic than Chukcho-Koryak:

Chukcho-Koryak	Kamchatkan	Uralic	##
**kъrγъ* "dry"	**k'izyi* id.	U **kośkə-* id.	35
**macvə̇* "breast"	W *maljav* id.	FU **mälγe* = **mälki* id.	47
**wər* '' "mesh"	**mčə-n* "maculae retium"	U **maća* "Fischreuse"	49
**məše''* "collect berries"	**meł-qef* "berries, fruits"	FU **moδ'ɜ* (or **moľɜ*) "berries"	51
**nə̲łγə̲* "skin"	W *xan*[*ś*]*x* id.	BF **naška* (or **načka*?) id.	58
**par''* " shoulder-blade"	W *paspas*, pl. *paspad* "scapula"	U **peδpä* "shoulder-blade"	69

3. Conclusion

The present list of lexical parallels between Chukcho-Kamchatkan and Uralic, containing 136 lexical units, is too low to formulate *all* phonetic correspondences in detail, but sufficient for acceptance of genetic relationship. The occasional citations of parallels from Yukaghir and Nivx should indicate the future direction of research: a common Uralo-Yukaghir-Nivx-Chukcho-Kamchatkan stock within Nostratic.

Abbreviations:
A Altaic, BF Balto-Fennic, Ch Chukcho-Koryak, ChK Chukcho-Kamchatkan, Chuk Chukchee, E East, Fi Finnish, FP Fenno-Permic, FU Fenno-Ugric, FV Fenno-Volgaic, Hu Hungarian, K Kamchatkan, Lp Lappic, Md Mordvinian, N North, NE Northeast, S South, Sm Samoyedic, Sw Swedish, Tg Tungusic, U Uralic, Udm Udmurt, Ug Ugric, W West, Yuk Yukagir.

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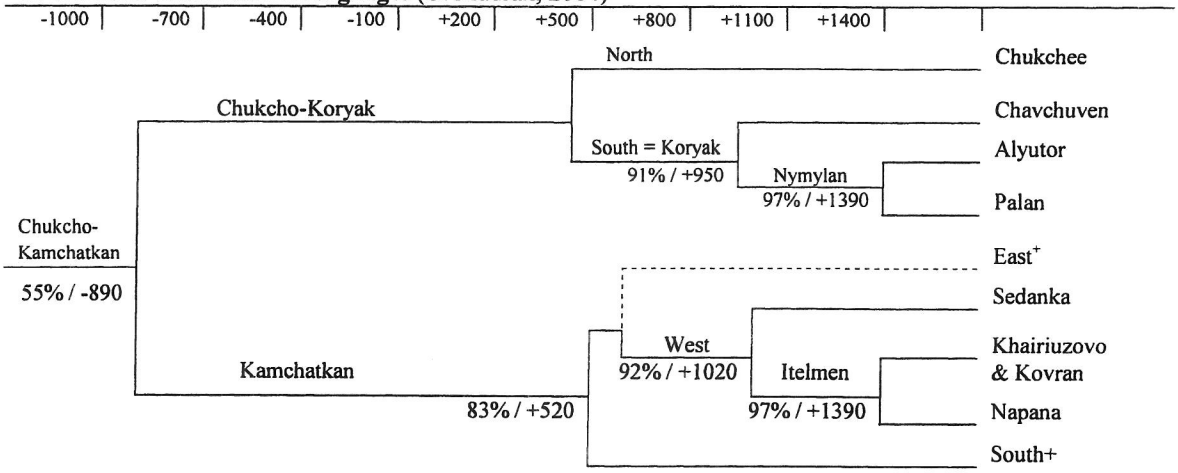
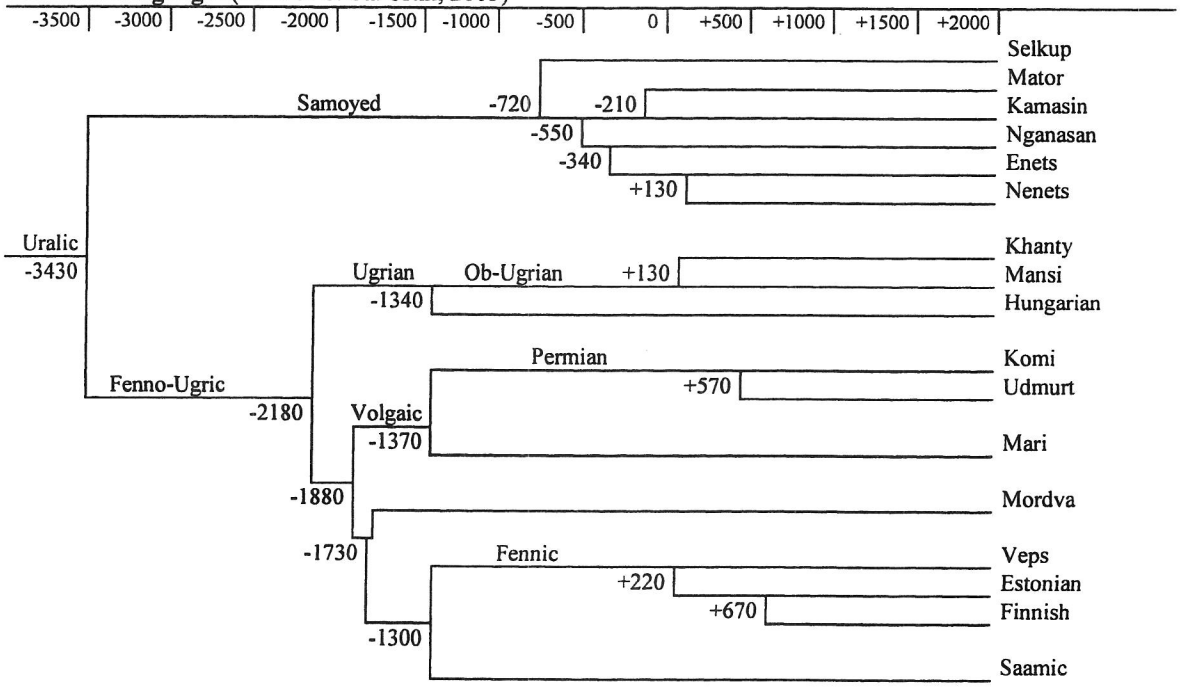
5. Appendix I: Tree-diagrams

A. Chukcho-Kamchatkan languages (O. Mudrak, 2004)



B. Uralic languages (team of S. Starostin, 2003)



5. Appendix II: Phonetic corresponences between Chukcho-Kamchatkan languages

A. Correspondences between Chukcho-Koryak languages

Golovastikov & Dolgopol'skij 1972, 27						Muravjeva 1986, 151, 158			
Ch	Chukchee	Chavchuven	Alyutor	Koryak	Itelmen	Ch	Chukchee	Koryak	Alyutor
*e	e	e	i	i		*e	e	e	i
*a	a	a	a	a		*a	a	a	a
*o	o	o	o	o		*o	o	o	u
*i	i/e	i/e	i	i		*i	i	i	i
*ä	ä/a	e/a	a	a		*ɛ	e	e/a	a
*u	u/o	u/o	u	u		*u	u	u	u
						*ə	ə	ə	ə
*'	'	'	'	'	ø	*'	'	H	'
*ć	ć	ć	ć	h	q/g	*H	'	H	H
*q	q	q	q	q	q/g	*q	q	q	q
*k	k	k	k	k	k	*k	k	k	k

*g	γ	γ	γ	h	k	*g	g	g	g
*ŋ	ŋ	ŋ	ŋ	ŋ		*ŋ	ŋ	ŋ	ŋ
*c	c	c	s	c		*c = ty	c	c	c
*t	t	t	t	t	t/s	*t	t	t	t
*d	r	j	t	j/ø	s/t	*d = δ	r	j(/c)	t
						*dy	r	j	c
*n	n	n	n	n	n	*n	n	n	n
						*ny	n	ny	ny
*p	p	p	p	p	p?	*p	p	p	p
*v	v	v	v	v	ø?	*v	w	v	v
*w	w	w	w	w	v/ø	*w	w	w	w
*l	l	l	l	l	l/ŝ	*l	l	l	l
						*ly	l	ly	ly
*j	j	j	j	j	z	*j	j	j	j
*r	r	r	j	j	z	*r	r (j)	j (c)	r
*m	m	m	m	m	m	*m	m	m	m

B. Correspondences between Chukcho-Koryak and Kamchatkan languages (Mudrak 2000, 11-16)

ChK	Chukcho-Koryak	Kamchatkan	ChK	Chukcho-Koryak	Kamchatkan
*p	*p	p	*'p-, *p'	*p	p'
*m	*m	m	*'m-, *m'	*v	m
*v	*v[*i, *ə] / *w[*a, *o, *ъ]	'-, -ø / z-	*'v	*p	'
*t	*t	t	*'t-, *t'	*t	t'
*t'	*c, *-t	č	*'t'-, *t'	*c, *-t	č'
*s	*t	s, -ł ~ l			
*n	*n	n	*'n	*š ~ *r-, *r	n
*č	*š	t, -č			
*š	*š	s, -l			
*j	*j	š / ' ~ j-, -j/z ~ ž	*'j-, j'	*j	č
*r	*r	z	*'r	*r	č(')
*l	*l	l	*'l	*l	l-, γl
*l'	*l (*c)	l	*'l'	*l (*c)	č
*ł	*ł	ł	*-'ł-	*ł, *c	(ł) č
*l'	*ł, *c	s-, s	*'l'	*ł, *c	(ł) č
*k	*k	k / q-[*a, *ъ, *i], -k	*'k-, *k'	k	k'
*γ	*γ	k-, γ	*'γ-	γ	x-, γ-
*ŋ	*ŋ	ŋ, ni-			
*q	*q	q-, -ø ~ h-, -q	*'q-	q	q'-
*h	*h	q ~ k-, -ø ~ '/ z-[*i, *j], -h	*'h-	h	'-, (h-)
			Vowels		
*ŋ	*ŋ	'-, ø ~ H	*i	*i, *į	i (~ e) / ă (~ ŏ) / ŭ
*k^w	*w (*v)	k	*e	*e, *ą	e (~ a) / ə / ŭ, i
*γ^w	*w	f-, w	*u	*u, *ų	u (~ o) / ă, e (~ i)
*ŋ^w	*ŋ	m	*ə	*ə, *ę	i / ə / ŭ (~ ŏ)
*q^w	*w (*v)	q	*ɨ	*ɨ	e (~ i) / ă
*h^w	*w	h-?	*a	*a	a / o / ă (~ ə) / i
*'	*ø	'-, ø ~ H	*o	*o	o / a (~ ă) / u
			*ъ	*ъ	a / ă (~ ə) / ŏ / i

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The Shompen of Great Nicobar Island: New linguistic and genetic data, and the Austroasiatic homeland revisited

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In an earlier contribution to *Mother Tongue*, Roger Blench rendered the valuable service of making a newly available Shompen data set more widely accessible. On the basis of those new data, Blench put forward the new and interesting idea that Shompen might represent a language isolate. Here a modicum of other newly available Shompen data collected by the late Elangaiyan is made more widely accessible. The earlier conjecture concerning the independent phylogenetic status of Shompen, however, is called into question. The view presented here is that Shompen is still just likely to be another language of the Nicobarese subgroup within the Nico-Monic branch of Austroasiatic.

The Nicobars and Austroasiatic

The Nicobars form an archipelago between the Bay of Bengal and the Andaman Sea, located to the south-southeast of the Andaman Islands and just north-northwest of the northern tip of Sumatra. Whereas the languages of the Andamans have no known linguistic relatives anywhere else in the world, the Nicobarese languages constitute a subbranch within the Nico-Monic or Southern Mon-Khmer branch of the Austroasiatic language family, as shown in Diagram 1. The Mon-Khmer-Kolarian language family was first recognised in the middle of the 19th century by Francis Mason (1854, 1860) and renamed Austroasiatic at the beginning of the 20th century by the Austrian Jesuit priest Wilhelm Schmidt (1904, 1906).

The languages of the Nicobarese subfamily are spoken by a little over 20,000 people on the Nicobar Islands. The specialist literature contains Nicobarese language names that generally resemble the names provided by Heinz-Jürgen Pinnow (1959). Recently, a research group led by V.R. Rajasingh conducted a pilot study in 2002 which identified new language names and has grouped together as 'dialects' related speech varieties.[1] In the northern portion of the archipelago, Pu: or Pu is spoken on Car Nicobar Island, and Tətɛt or Saněnyö is spoken on Chowra Island. Təihlɔŋ or Lurö is spoken on Teressa Island, and the closely related Poːəhət or Poahat is spoken on Bompoka Island. The 2002 study considers Poːəhət to be a dialect of Lurö.

The four speech forms spoken in the central portion of the archipelago, on the islands of Nancowry, Camorta, Trinkut and Katchall, are identified by the new survey as representing four dialects of a single language. Rajasingh refers to this language as Muöt, with Muöt proper being spoken on Nancowry Island. Pinnow refers to the language spoken on the islands of Nancowry and Camorta as Nancowry or Naːŋkəuri,

[1] Unless stated otherwise, I first provide the language name given by Pinnow (1959) and then the recently introduced language name identified in the 2002 pilot survey. I thank V.R. Rajasingh for kindly providing me with these newer names from their yet unpublished pilot survey report.

whilst the new survey assigns a distinct dialect name, viz. Kinlaka, to the Camorta island dialect. La:fu:l or Laful is spoken on Trinkut Island, and Te:ɦɲu or Tehnyu is spoken on Katchall Island.

In the south of the Nicobar archipelago, Lo'ɔŋ or Takahanyilāng is spoken along the coast of Great Nicobar Island. The 2002 survey groups together the forms of speech on the islands of Milo, Condul and Little Nicobar as dialects of a single language called Lamongse, with Lamongse proper being spoken on Little Nicobar and Condul. Pinnow, however, distinguished under the name Ɔŋ the distinct variety spoken on Little Nicobar Island, and reserved the term La:mɔŋʃe for the language of Condul. Miloh or Pihouny is spoken on Milo. Distinct from all other Nicobarese languages is ʃompẽ or Shompen, spoken in the hinterland of Great Nicobar Island.

The 1901 census counted 3,451 Car Nicobarese, 522 natives of Chowra, 702 Nicobarese on Teressa Island, a total of 1,095 natives on the central portion of the archipelago, with just 192 Nicobarese in the southern portion of the archipelago, in addition to 348 Shompen in the interior of Great Nicobar Island, giving a total native Nicobarese population of 6,310, excluding the 201 foreign traders then registered on the islands (Temple 1903, III: 142). Eighty years later, the 1981 census enumerated a total of 20,940 native Nicobarese plus 223 members of the Shompen tribe (Singh 1988: 60). Of these 223 Shompen, 46 were registered as 'workers', and 44 were recorded as being engaged in hunting and fishing. There were reportedly four literate Shompen men and two literate women. Recently, Singh reported that the major concentration of Shompen was currently located 'at a distance of 27 kilometres from Campbell Bay on East West Road' (1994a: 1076). The Boxing Day Tsunami of 2004 disastrously affected the demography of all Nicobarese language communities.

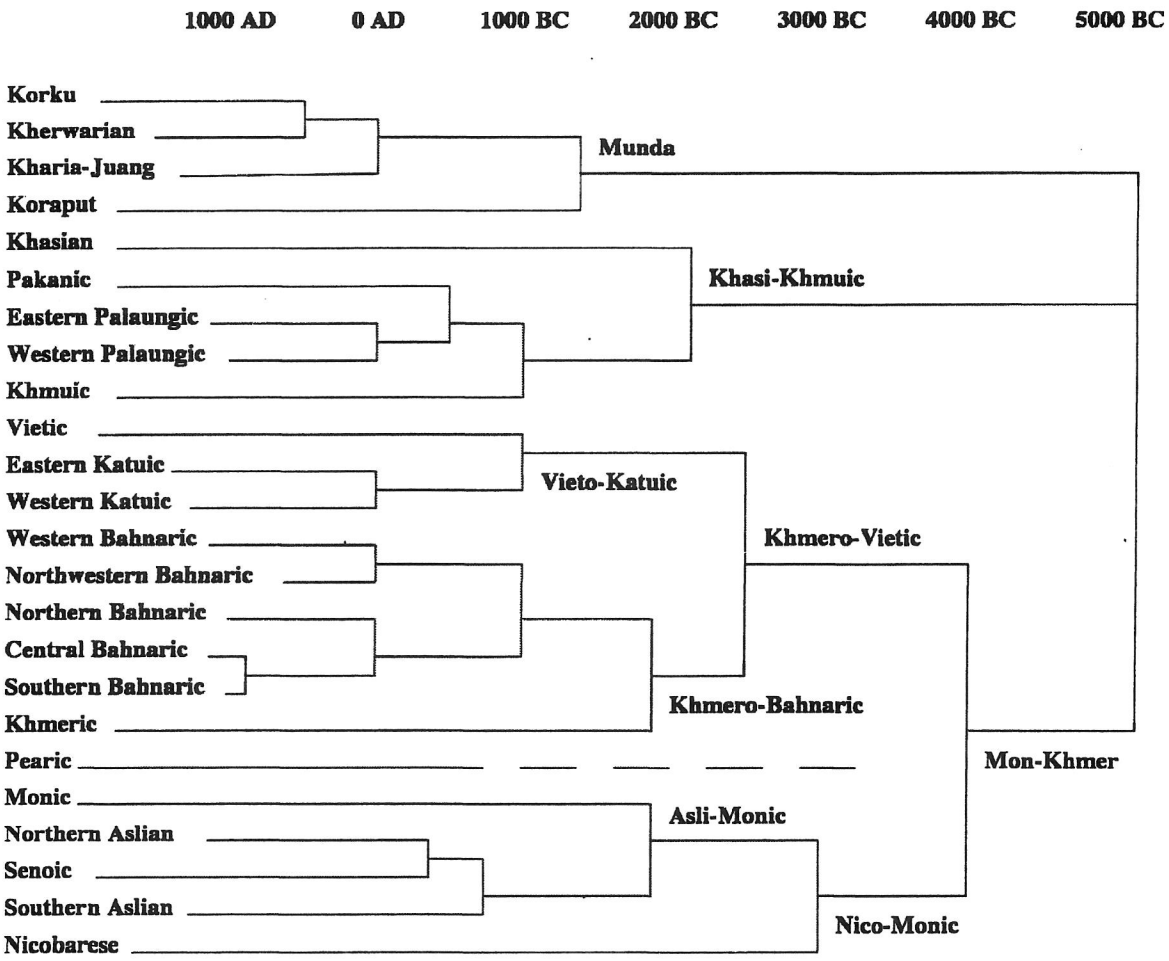

Diagram 1: Diffloth's (2001, 2005) Austroasiatic language family tree with his tentative calibration of time depths

Early and recent glimpses of the Shompen language

Early Nancowry dictionaries and word lists of other Nicobarese languages were first compiled by two men of markedly different backgrounds, i.e. the Danish scholar Frederik Adolph de Roepstorff (1870, 1875 and posthumously 1884) and the Englishman Edward Horace Man (1872, 1888, 1889b). Both men recorded data on the Shompen or Shom Pen language. The Shompen are indigenous foragers who reside in the hinterland of Great Nicobar Island, and their language has always appeared to differ considerably from the other languages spoken on the Nicobars.

Frederik Adolph de Roepstorff[2] was born on the 25th of March 1842 at sea on a British vessel sailing from Madras to Europe, a circumstance which entitled him to British citizenship. He was christened at Cape Town and raised in Denmark. After his schooling, he returned to India in 1867, whereby he made use of his right to be recognised as a British citizen to become extra assistant superintendent on the Andamans in 1868, and later assistant superintendent of the Nicobars in 1877. On the 11th of January 1872, during home leave in Denmark, he married Hedevig Christiane Willemoës (born 30 November 1843, died 21 August 1896 at Copenhagen). He was murdered on the 24th of October 1883 by the bullet of a captive sepoy on Camorta (Bricka 1900, XIV: 519-520).[3] His grave lies in 'the little Camorta graveyard, where the bluff near the English settlement overlooks the beautiful Nancowry harbour, and the nestling huts of the natives whom he loved so well' (Chard 1884: i).

Edward Horace Man was born in Singapore on the 13th of September 1846 and educated in England. He first arrived at Port Blair in the Andamans in 1871 in order to take up employment as an assistant superintendent under his father Henry Stuart Man. Edward's elder brother A.C. Man had preceded him in 1869 and had already compiled a first Andamanese word list, although this elder brother would later be killed in Burma. During his many years in the Andaman and Nicobar archipelagos, Edward Horace Man authored numerous Andamanese and Nicobarese linguistic studies. After his long service in the Nicobars and Andamans, he enjoyed three decades of retirement in Brighton before dying of an illness on the 29th of September 1929.

Before Frederik de Roepstorff and Edward Horace Man, data on Nicobarese languages were collected sporadically. As early as 1778, Fontana (1792) recorded the very first short Nicobarese word list, and David Rosen (1839), a Danish pastor, published 63 Nancowry words and the Nancowry numerals. Frederik de Roepstorff provides a good account of much earlier and contemporaneous fieldwork on the Nicobars, but de Roepstorff remains the first scholar ever to have collected Shompen data. He held the Shompen or 'Shobængs' to be 'the aborigines of the Nicobars'. He reported that 'The Shobængs at Great Nicobar are hostile to the Nancowry people who reside along the coast, and not long ago a coastman was killed by them. This happened in December 1872' (1875: 2-3).

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[2] The surname has sometimes appeared in print in the orthography 'de Röepstorff'.

[3] In a study published in the formerly Danish city of Lund, Simron Jit Singh (2003) provides a valuable historical account of European dealings in the Nicobars, with special emphasis on the Danes, yet somehow he manages to entirely overlook Frederik Adolph de Roepstorff.

In contrasting his impressions of the Shompen as opposed to the coastal Great Nicobarese, Edward Horace Man seconded de Roepstorff's opinion that the Shompen represented the true aboriginal population of the Nicobars.

> The Shom Pen have been — and I believe with good reason — accepted as the pristine indigenes, and their remote origin and purity of breed is apparently beyond question, while the various sections of the coast tribe, although differing from each other according to external influences and other circumstances, are without doubt descended from a mongrel Malay stock, the crosses being probably in the majority of cases with Burmese, and occasionally with natives of the opposite coast of Siam, and perchance also in remote times with such of the Shom Pen as may have settled in their midst; the fact that the Shom Pen present Mongolian affinities would thus to some extent account for the frequent occurrence of the oblique eye in a more or less marked degree throughout the group. (1889a: 365-366)

Frederik de Roepstorff described how he had been 'fortunate enough to see one of these Shobængs. He was a big, strong youth, nearly as well built as those of Nancowry'. Based on his observation of the phenotypes, he developed a theory that the modern Nicobarese or 'Nancowry race', who 'inhabit Trinkut, Nancowry, Camorta, Katchall, Car Nicobar and the coasts of Little and Great Nicobar', had largely replaced the original inhabitants of the Nicobars, who had been 'attacked and driven away from the best places, and a remnant of them is now found in the interior of Great Nicobar and on the little isolated island of Schowra' [i.e. Chowra, just north-northwest of Teressa island] (1875: 3-4). Roepstorff managed to collect only 'a few words', he reported, 'as it was not easy matter to obtain them from my Shobæng acquaintance'.

In fact, de Roepstorff recorded 329 words or expressions in the language of the 'Shobængs' or 'inland race' in addition to the Shompen numerals from one through ten. His comparative Nicobarese list contains many more items from the languages of Nancowry, Car Nicobar and Teressa Island and the Great Nicobar coastal dialect spoken by a language community of the 'Nancowry race'. Later, Edward Horace Man, in his 1889 Nancowry dictionary, included 237 Shompen words, expressions and the numerals in an appendix entitled 'Comparative List of Words in Common Use in the Six Dialects of the Nicobar Group'. At the time, Man estimated the population of the Shompen to be 'say 750-1000'.

After the pioneering work of de Roepstorff and Man, no new linguistic data were seen from Great Nicobar Island for over a century.[4] Then in a small book which appeared in 2003, two Bengali linguists Subhash Chandra Chattopadhyay and Asok Kumar Mukhopadhyay made a considerable body of new Shompen data available. The new field research yielded a harvest of 723 Shompen words, 18 phrases and 23 sentences. A copy of this rare publication was brought to Europe in the spring of 2007 by my colleague and old friend Suhnu Ram Sharma, who lent it to Laurie Reid, likewise a visiting scholar at Leiden, and through Laurie also to Roger Blench of Cambridge. The

[4] In 1993, Nandan included a glossary of 137 words and expressions from Great Nicobar, including several obvious Indo-Aryan loans like 'chāpāti', 'dāl', 'ātā' and 'ghee'. Judging from the items, the language documented is Lo'ɔŋ, the coastal dialect of Great Nicobar, not Shompen, e.g. Nandan's *nang* 'ear' vs. Shompen *gña*, Nandan's *pukoi* 'pig' (cf. de Roepstorff's *bakoi*) vs. Shompen *noñg*, Nandan's *em* 'dog' vs. Shompen *küp*.

new Shompen data were studied in Amsterdam by Roger Blench, and his comparison of the Shompen data with Nicobarese and Austroasiatic lexical resources has now appeared in print, viz. Blench (2007). The new Shompen data were also made available to Gérard Diffloth, who assessed them against the earlier Shompen data and his own comparative Austroasiatic database.

In addition to the new data published by Chattopadhyay and Mukhopadhyay, unpublished material was collected by the late Rathinasabapathy Elangaiyan, who passed away on 18 January 2008. Elangaiyan undertook some eight to nine trips to the Nicobars since 1983 until just before the tsunami in 2004, staying for sojourns which varied in duration from two to four months. His main focus was the Pu language of Car Nicobar Island, but he also undertook to investigate the Shompen language in the interior of Great Nicobar Island. Elangaiyan visited the Shompen twice. Elangaiyan stayed at the Shompen Hut Complex, a collection of a few huts set up by the government to serve as the site for a health post and food distribution centre. There has never been a physician or any health workers permanently on duty at the hut complex, however.

On his first visit, Elangaiyan arrived at the hut complex with the assistance of porters which he had hired. Elangaiyan camped at the Shompen Hut Complex alone. Heavy rains ensued, and later he was stricken with *Plasmodium vivax* malaria. His condition and the water-logged terrain prevented him from leaving the site. During his illness and convalescence, the Shompen regularly visited him, and Elangaiyan conducted his first fieldwork whilst being tended and looked after by the helpful and friendly Shompen. After more than one and a half months at the hut complex, a small number of naval people came to the site for a picnic and stumbled upon Elangaiyan. They sent back a message to the township and evacuated the much weakened Elangaiyan.

On his second visit, Elangaiyan again stayed at the township for a period of two and a half months. Elangaiyan's corpus of reliable data is scanty, he told me, because a monolingual approach without any contact language severely limits a linguist's ability of ascertaining the precise meaning of target language forms. The fieldwork was consequently beset with difficulties in ascertaining a precise description of the meanings. The fact that the Shompen at the hut complex are monolinguals also appears to have adversely affected the quality of the new data set provided by Chattopadhyay and Mukhopadhyay, whose fieldwork was subject to the same limitation. Elangaiyan reported that his knowledge of Pu, the language of Car Nicobar, was only somewhat helpful to him in dealing with the Shompen.

Elangaiyan prepared the native language primers for Pu, i.e. Car Nicobarese, used in mother tongue instruction. These are sound pedagogical textbooks. Likewise, the Shompen language primer is based mainly on Elangaiyan's fieldwork, and he is mentioned as a co-author in the produced primer. However, Elangaiyan was not at all pleased with the quality of the Shompen primer. He had strong reservations about the Shompen language primer even before its publication because his fieldwork data, though valuable, were intended for scholarly consumption by linguists only, with qualifications about specific uncertainties regarding certain forms and especially meanings. Nonetheless, administrative exigencies compelled the hasty publication of the Shompen primer. The Pu primers, entitled *Ṙô Tarik 1* and *Ṙô Tarik 2*, appeared in 1985 and 1987 respectively, published in Devanāgarī script by the Central Institute of Indian Langua-

ges at Mysore. The level 1 primer, entitled *Shompen-Hindi Bilingual Primer Śompen Bhāratī 1*, written in Devanāgarī script, appeared in 1995, jointly published by the Central Institute of Indian Languages at Mysore and the Tribal Welfare Department of the Andaman and Nicobar Administration at Port Blair. The Shompen primer opens with the following words, authored by V. Gnanasundaram and M.R. Ranganatha of the Central Institute of Indian Languages at Mysore:

> The Shompens are still a shy people who feel uncomfortable in the company of outsiders and at the first opportunity escape into the jungle. They never allow outsiders to know where they live. Their villages and homes are beyond the reach of outsiders.

Gérard Diffloth and I looked at his copies of these Nicobarese primers. The Shompen primer data consist of the following 70 items: *la:ʔø* 'fish', *ka:ʔav* 'rain', *ø:kʔa:t* 'girl', *kø:v* 'dog', *kagøy* 'stars', *kayayøy* 'parrot', *pa:ʔa* 'breadfruit', *hnaʔu* 'pig', *mi:ʔi* 'owl', *æʔøʔi:* 'black', *æṭiyu* 'red', *ni:yi* 'mouse', *hiv* ~ *hi:v* 'sun', *giya:v* 'scorpion', *ŋaŋvo* 'bamboo', *phøŋø:* 'beehive', *hmøŋøy* 'snake', *ŋaḍuvi* 'hoe', *jøva:k* 'spider', *lovvu* 'necklace or bracelet', *thlovvu* 'stone, rock', *æ:ṭuvi* ~ *æ:ṭhuvi* 'old man', *ṭæ:yc* 'cockroach', *ḍæ:ḍiyav* 'woman', *ba:pa:y* 'papaya', *o:kʔa:y* 'infant', *cyo:y* 'macaque', *ṭyo:y* 'bread, taro, potato', *ḍo:ʔo:* 'hill', *ã:ø̃* 'mosquito', *vahã:* 'branch', *ɛhã:* 'root', *mã:ø̃:v* 'butterfly', *okhʔam* 'man pointing with both index fingers to the sides of his head', *ñiyo* 'house', *thla:tayo* 'housefly', *øyõ* 'bat', *æyʔev* ~ *æyayov* 'centipede', *ŋa:niyõ:* 'log', *ŋa:tiŋyũ* 'tree', *agayñhyã:* 'cloud', *æhyu:* 'pigeon', *ñu:yi* 'squirrel', *pmãʔã:v* 'frog', *tyõvgo:* 'beach, sand', *tɔghøyø* 'mango', *bɔvvu* 'sprout', *tɔmhøya:v* 'coconut', *ŋɔ:ʔa* 'eagle', *løv* 'thigh', *miyøv* 'cheek', *to:y* 'lip', *naŋ* 'ear', *iŋa:yahi* 'chin', *hma:ñ* 'eyes', *hiyøhŋ* 'anklebone', *nuva:ñ* 'neck', *kuma:ñ* 'forehead', *hɔgʔa:y* 'waist', *ugiyøv* 'fingernail', *iya:i* 'tongue', *løgø:v* 'crab', *ŋahã:* 'leaf', *mø:ʔøy* 'banana', *omiyo:* 'cat', *ṭigʔa:k* 'gaviyal', *opʔa:k* 'lead', *phayayov* 'red ant', *høgvo:* 'sea', *kʔa:y* 'moon'.

The romanisation here is a transliteration of the Devanāgarī orthography specifically developed for the Shompen primer and is based on the phonetic explanations provided on two unnumbered pages in the introduction. We have made a number of transcriptional decisions. For example, the phonetic symbols [æ] and [ɛ] have been introduced to transliterate newly devised Devanāgarī vowel signs, and a vowel that might in fact be some central vowel has been transliterated here from the original Devanāgarī orthography as [ø], in strict adherence with the description provided in the front of the primer. The primer gives the Shompen words for 'sun', 'centipede' and 'old man' in two different Devanāgarī spellings. The meaning of some words was difficult to ascertain on the basis of the accompanying illustration alone. Although Elangaiyan stressed the unreliability of the data in this primer and the possibility of intra-Nicobarese loans in the data, Gérard Diffloth observed that it is nonetheless easy, even upon casual observation, to spot several well-known Nicobarese and Mon-Khmer etyma reflected in the data culled from this Shompen primer, e.g. *naŋ* 'ear', *løv* 'thigh', *ñiyo* 'house', *tɔmhøya:v* 'coconut'.

Observations regarding the Shompen material

Other than the Shompen primer and Elangaiyan's unpublished field notes, the Shompen material comprises three distinct data sets. The early material consists of the 339 'Shobæng' words or expressions, including the numerals from one to ten, that were published by de Roepstorff in 1875 and the 237 'Shom Peń' words, expressions and numerals published by Man in 1889. Man reported that the name 'Shom Peń' was the coastal Great Nicobarese term for the inland people, consisting of the element *shom*, signifying 'people' or 'natives', and *peń*, the proper name of a tribe, pronounced like French *pain*. The Shompen themselves, according to Man, referred to themselves as *Shab Daw'a* (1886: 432). The third data set, presented in 2003 by the two Bengali linguists Subhash Chandra Chattopadhyay and Asok Kumar Mukhopadhyay, comprises 723 Shompen words, 18 phrases and 23 sentences.

Impressions of Shompen phonology can be gleaned from the available material. Frederik de Roepstorff's notation distinguished a ~ ā, and perhaps this orthographic distinction denoted two distinct vowels, viz. /ə/ vs. /a/, in accordance with Indological convention. His notation also differentiated e ~ é and o ~ ō. These distinctions suggest a possible length contrast or tense vs. lax opposition. Similarly, Man's notation differentiated the Shompen vowels a ~ à ~ â and also made the distinctions e ~ ē, i ~ ī, o ~ ô ~ ō and u ~ ū. Chattopadhyay and Mukhopadhyay describe Shompen as having seven or eight vowels /i, e, ɛ, a, ā, ɔ, o, u/, depending on what we are inclined to think about the contrast represented as a ~ ā. All eight of these vowels can reportedly be nasalised. Due to font difficulties, Chattopadhyay and Mukhopadhyay use capital E for Shompen /ɛ/ and capital O for the vowel /ɔ/. Blench takes Chattopadhyay and Mukhopadhyay's account at face value and accepts that their orthographic distinction a ~ ā as representing a length contrast, whilst I am inclined not to exclude the possibility that what the two authors mean by 'phonemic length', restricted to just this one Shompen vowel, might very well just represent two vowels of an altogether different timbre.

The Shompen consonant phoneme inventory according to Chattopadhyay and Mukhopadhyay comprises the phonemes /ʔ, k, kh, g, gh, ŋ, c, j, ɲ, t, th, d, n, p, ph, b, bh, m, y, ɣ, l, w, ɸ, x, h/. Shompen purportedy lacks a phoneme /dh/, analogous to Shompen /gh/ and /bh/. Shompen has no sibilants, but has the fricatives /ɸ/ and /x/. Shompen has a phonemic glottal stop. In the notation used by Blench, Chattopadhyay and Mukhopadhyay's symbols ?, ṅ and ñ have been replaced by the more current phonetic symbols ?, ŋ and ɲ respectively.

In evaluating the Shompen lexical material, the differences between the three data sets is the first observation to which any close scrutiny will lead. Chattopadhyay and Mukhopadhyay's (2003) data set resembles that of Man (1889b), but neither Chattopadhyay and Mukhopadhyay nor Man very closely resemble de Roepstorff's (1875) data set. At the same time, the selection of lexical items reflected in the material collected by Chattopadhyay and Mukhopadhyay appears to be somewhat imbalanced. There are two likely causes to which these discrepancies might be attributed.

First, Man observed that Shompen is not so much a single language as an internally diverse group of inland dialects, with each community possessing 'a dialect more or less distinct, but this is what might reasonably be expected when we consider the isola-

tion of the several encampments, and the difficulties of intercommunication, apart even from the hostile relations in which they stand towards one another' (1886: 449). Man remarked in particular that the *dakan-kat* dialect[5] of Shompen spoken near Kashindōn on the west coast exhibited a high degree of lexical divergence from the Shompen spoken at Lafal and Ganges Harbour (1886: 448).

Over a century later, Chattopadhyay and Mukhopadhyay too reported two groups of Shompen. One Shompen population is a semi-nomadic hunter-gatherer group 'living in deep forests in the northern and the central parts of the island around the Galathia and the Alexandria rivers'. They barter jungle produce for food and also receive food and medical care through a government welfare programme. They hunt with spear and are reportedly unfamiliar with bow and arrow. The other Shompen group lives on the east coast of Great Nicobar, where they 'are in better contact, especially with the local Nicobarese tribe'. The eastern coastal group speak some Lo'ɔŋ, i.e. coastal Great Nicobarese, and some of these Shompen also understand Hindi and frequent the government offices at Campbell Bay. Chattopadhyay and Mukhopadhyay reportedly collected their data 'from the last week of December 2000 up to the 1st week of February 2001' from the semi-nomadic deep forest group at the Shompen Hut Complex, located 27 km from Campbell Bay on the East-West Road. The authors assert that these deep forest Shompen never go to Campbell Bay (2003: 1-3).

Secondly, an impression which Gérard Diffloth and I shared when studying the 2003 data set is that another cause for the discrepancy between the three available data sets might be a fieldwork problem especially affecting the most recent study. It is unclear which contact language the researchers used with the reportedly monolingual and shy Shompen and what consequences this difficult fieldwork situation may have had on the quality of the data elicited. Chattopadhyay and Mukhopadhyay record the Shompen pronominal forms *iɔ̃* ~ *ihɔ̃* 'I', *ca* 'my', *emāu* 'we' (dual exclusive), *eo* 'we' (dual inclusive), *eõ* 'he', *onā* 'his'. Yet the data set contains no words for 'we' in the plural (vs. the dual), nor does the glossary contain any second person pronominal form. However, the authors record three utterly different words for 'vagina', i.e. *ipudāo, ugāu, totoghāb*. Also, Shompen purportedly has a lexicalised expression *yiāi igoki*, glossed by Chattopadhyay and Mukhopadhyay as 'dismatting' (2003: 37), an unfamiliar, possibly administrative term which can also be found on a few Keralan and Bengali websites.

The new data set by Chattopadhyay and Mukhopadhyay provides the Shompen form *koceoŋ* for 'cat', a Malay loan word found throughout the Nicobars, but Frederik de Roepstorff recorded an abbreviated form *tjing* for Shompen 'cat'. It is conceivable that the truncated form was the earlier loan which Shompen acquired from Lo'ɔŋ or Coastal Great Nicobarese, and that the word was subsequently loaned again. Nandan (1993: xx) records the Coastal Great Nicobarese form *kuching* 'cat'. Finally, Chattopadhyay and Mukhopadhyay report that syntactically the basic syntactic element order of Shompen is verb-subject-object (VSO).

Chattopadhyay and Mukhopadhyay's data set is therefore problematic, and a comparative study based on the 2003 data set led Roger Blench to conclude that Shompen

[5] The term *dakan-kat* would appear to denote the 'ill-adjusted loin-cloth' worn by this group of unkempt Shompen 'which they evidently wear in imitation of the *neng* of the coast men' (Man 1886: 447).

has 'no obvious relationship with other Nicobarese languages or other Mon-Khmer languages'. Blench goes on to speculate that: 'As with the Andamans, the possibility that the Shom Pen represent a relic of early human expansion around the rim of the Indian Ocean should be seriously considered'. Is Shompen then not Austroasiatic at all and therefore perhaps a language isolate of South Asia like Nahali, Vedda, Kusunda or Burushaski? Have the new data changed our view of Shompen? What are the possible implications of the new Shompen data for ethnolinguistic prehistory?[6]

Only a thorough holistic description of the language can resolve such uncertainties. New work on Shompen urgently needs to be undertaken by a gifted and dedicated field linguist willing to brave the dangers of malaria and the discomforts of conducting fieldwork at the Shompen Hut Settlement. There a linguist could take up the challenge of conducting arduous work with monolingual Shompen speakers. Also, new comparative tools such as Stampe's Munda database and Shorto's (2006) comparative Mon-Khmer dictionary are now available. Diffloth (2008) should be carefully consulted, however, before considering using Shorto (2006) as a reference.[7] At the same time, new data on Nicobarese languages have been provided in several studies, e.g. Whitehead (1925), Radhakrishnan (1981).

Meanwhile, we can best trust Gérard Diffloth's assessment of the more reliable earlier Shompen data collected by Frederik de Roepstorff and Edward Horace Man in light of his comparative Austroasiatic database. Diffloth assesses that 'out of 222 Shompen lexemes, 109 have cognates with other Nicobarese languages', whereas '102 have no identifiable cognates', and '7 have *South Mon-Khmer cognates not found* in other Nicobarese languages'. Two of the 222 lexical items can be identified as borrowings from Malay. Out of the 109 shared Nicobarese etyma in Shompen, 57 also have good Southern Mon-Khmer cognates. The seven Shompen lexical items that have no Nicobarese cognates but are shared with other South Mon-Khmer or Nico-Monic languages are *toak* 'afraid', *hohom* 'bathe', *aløv* 'pig', *chuk* 'foot', *kateap* 'egg', *kakoay* 'sit' and *kamyak* 'husband'. Gérard also points out that Shompen has undergone a regular sound change, whereby Austroasiatic final nasals, retained as final nasals in Nicobarese and most mainland Mon-Khmer languages, are reflected as devoiced stops. This fact indicates that such good Austroasiatic roots cannot have been borrowed from mainland Mon-Khmer languages, and that Shompen is a language belonging to the Nicobarese branch, not a language isolate (Diffloth 2007).

[6] Chattopadhyay and Mukhopadhyay venture an attempt to relate Shompen to Tibeto-Burman, Kra-Dai (Daic), Austroasiatic and Austronesian. To this end, the only evidence adduced consists of three Shompen, Fijian and Samoan lexical items glossed as 'canoe', 'pandanus' and 'coconut'.

[7] In fact, it may not be too late to follow up on Diffloth's suggestion of publishing a photo-facsimile edition of Shorto's original manuscript and notes, just as the Soviet Academy of Sciences did belatedly in 1960 with the valuable polyglot notes of the murdered Tangut scholar Nikolaj Aleksandrovič Nevksij (cf. van Driem and Kepping 1991, van Driem 1993).

The physical anthropology of the Shompen

Even in the old physical anthropology of frizzy hair and phenotypes, the somatological affinities of the Shompen were a heated topic from the start. The proximity of the negrito populations of the Andamans in conjunction with the idea that the inland Shompen represented some aboriginal remnant group suggested to the minds of many that the Shompen too were a negrito people. Frederik de Roepstorff was the first to assail the then widely held view that the Shompen were a negrito population. He maintained that the Shompen were of 'Mongoloid' stock. Some resisted this idea, preferring to entertain the view that the Shompen were of 'Negrito stock, allied to the Andamanese or the Semangs of the Malay peninsula' (Distant 1879: 336).[8]

A detailed old-fashioned physical anthropology of the Nicobarese peoples is provided by Man, who noted that the 'characteristic tint' of the Shompen was 'a dull brown' lacking 'the healthy appearance which distinguishes the coast people' (1889a: 390). The ossuary practices on the islands of Bompoka and Teressa suggested to Bonington early cultural contacts with Melanesians or, in his own words, 'the existence of a strong Melanesian element in the Nicobars in spite of their Mon language' (1926: 106). Studies such as Ball (1881), Man (1889a), Boden Kloss (1903) and Meerwarth (1919) contain interesting descriptions and valuable photographic documentation of the Nicobarese people and their architecture. Recent accounts of the Nicobarese in their current circumstances, sometimes including pictorial documentation, are provided by Agarwal (1967), Dagar and Dagar (1999), Krishan (1986), Lal (1977), Justin (1990), Nandan (1993) and Rizvi (1990).

The new physical anthropology focuses on molecular polymorphisms in the double helices of the chromosomes and on the mitochondrial DNA. Recently some molecular genetic work has been done on the Shompen. Twelve Shompen males were sampled in a study, and all were found to bear the O2a (M95) haplogroup on their Y chromosome (Trivedi *et al.* 2006).[9] This single nucleotide polymorphism has been identified as a possible marker for a paternal lineage reflecting an ancient male-driven spread of the Austroasiatic language family (van Driem 2007).[10] In fact, the correlation of linguistic and population genetic findings has suggested that many language communities speak

[8] In his recounting of the tale, Roger Blench writes that 'the fact that the Shom Pen have straight hair, like the Nicobarese, brought an untimely end to such speculation', i.e. the conjecture of early ethnographers that the Shompen might represent a missing link between the Andamanese and the indigenous negrito population groups of the Malayan peninsula. This statement is placed underneath a photograph showing at least two Shompen men with unmistakably frizzy hair, one of whom could even be said to be sporting the coiffure once popularly referred to as an 'afro'. Blench hastens to observe, however, that 'the issue of straight hair has been questioned, with some populations apparently having wavy hair'.

[9] Some Nicobarese population genetic data were also included in recent Andamenese studies, i.e. Thangaraj *et al.* (2003), Thangaraj *et al.* (2005), Palanichamy *et al.* (2006).

[10] Kumar *et al.* (2007) essentially corroborate my interpretation of the earlier work on the O2a haplogroup and conclude on the basis of M95 'that the Mundari populations are one of the earliest settlers in the Indian Subcontinent'. The study by Kumar *et al.* (2007) is informative for the Munda groups, though the dating is wrong. Their article argues in favour of a hypothesis about Austroasiatic origins which is entirely untestable on the basis of their sampling, including their speculation that 'these populations have come from Central Asia through the Western Indian corridor and subsequently colonized Southeast Asia'.

father tongues rather than mother tongues. Languages and entire language families appear often to have been disseminated by male speakers.

The widespread nature of the correlation of language with a few predominant Y haplogroups suggests that it must have been a recurrent motif in ethnolinguistic history that mothers at one point in time were compelled to raise their children in the language of the fathers. Based on the work of Estella Poloni and her teammates (1997, 2000), this phenomenon, which I called the 'Father Tongue hypothesis' in Taipei in 2002, has consequences for the way historical linguists will in future have to think about language change. This phenomenon also opens up the question of whether the sexual dimorphism in our species with respect to linguistic abilities and language sensibility could have its evolutionary origins in the dynamics of warfare, competition and linguistic assimilation between rival language communities in an ancestral age.

Trivedi *et al.* (2006) do not specify other single nucleotide polymorphisms (SNPs) which they may have typed that might have distinguished different lineages within the clade. This would have been helpful, for we have more recently come to know that the O2a (M95) haplogroup can be subdivided into O2a*, bearing only the M95 mutation, and O2a1a (PK4) and O2a1* (M88, M111). In their study, the short tandem repeats (STR) within the O2a haplogroup suggested a greater affinity between the Shompen and the Munda than with other Nicobarese, and the greatest distance to Austroasiatic language communities of Southeast Asia. However, short tandem repeats are highly variable and especially useful as forensic markers. Therefore, whilst the STR profile provided by Trivedi *et al.* (2006) is suggestive, the short tandem repeats provide no clear-cut picture of affinities and lack monophyletic resolution. Trivedi *et al.* (2006) claim that the Shompen represent the 'descendants of Mesolithic hunter-gatherers'. Although their data provide no support for this assertion, it may of course be true that most people on earth today happen to descend from Mesolithic hunter-gatherers at some time and place.

The mitochondrial DNA of the Shompen is reportedly characterised by the two clades B5a and R12. The B5a configuration represents a newly identified clade with a coalescence age of 17,000 years and geographical distribution mainly in insular and littoral Southeast Asia. The 'R12' clade, which will probably be relabelled 'R22' in the newly emergent conventional mtDNA nomenclature, is common amongst other populations native to the Nicobars and represents a lineage which is also seen in Vietnam, Indonesia, the Philippines and on Taiwan. In short, the population genetic data can be seen as corroborating to some extent the linguistic view that we have of Nicobarese as a branch of Austroasiatic, though, of course, population genetic data should not necessarily be expected to do so. The newly developed autosomal markers have yet to be tested on the Shompen, other Nicobarese peoples and Austroasiatic language communities.

Linguistic palaeontology and the Austroasiatic homeland

In addressing the question of the precise whereabouts of the Austroasiatic ancestral homeland from a purely linguistic point of view, the two foremost criteria in our deliberations are the findings of linguistic palaeontology and the geographical centre of gravity of the language family based on the distribution of modern Austroasiatic language communities and deep phylogenetic divisions in the family. Then these inferences can be critically assessed in view of relevant information from other fields such as archaeology and population genetics. The distribution of the modern language communities and the geography of the deepest historical divisions in the family's linguistic phylogeny would put the geographical centre of the family somewhere between South Asia and Southeast Asia, in the area around the northern coast of the Bay of Bengal.

Gérard Diffloth pointed out in his keynote address on 'Considerations of the homeland of Austroasiatic', with which he inaugurated the 3rd International Conference on Austroasiatic Linguistics (ICAAL 3) at Deccan College on 26 November 2007, that nobody knows the higher-level nodes of Austroasiatic for sure, which leaves the question of the earliest branchings undetermined. If the deepest division in the family lies between Munda and the rest, as an older generation of scholars used to suspect, then the geography of deep historical divisions in linguistic phylogeny would compel us to look for a homeland on either side of the Ganges delta, although we would be unable to say precisely whether this homeland would have to have lain to the east or to the west of the delta. If we assume the veracity of Diffloth's new tripartite division, shown in Diagram 1, the geography of the deepest phylogenetic divisions within Austroasiatic would likewise suggest a homeland in this region.

Linguistic palaeontology, a term introduced by Adolphe Pictet in 1859, is an attempt to understand the ancient material culture of a language family on the basis of the lexical items which can be reliably reconstructed for the common ancestral language. The linguistic palaeontology of Austroasiatic strongly qualifies the ancient Austroasiatics as the most likely candidates for the first cultivators of rice. At the same time, Diffloth has shown that the reconstructible Austroasiatic lexicon paints the picture of a fauna, flora and ecology of a tropical humid homeland environment.

Diffloth (2005: 78) has shown that three salient isoglosses diagnostic for the faunal ecology of the Proto-Austroasiatic homeland can be reconstructed all the way to the Austroasiatic level and are reflected in all branches, including Munda, i.e. *mraːk 'peacock *Pavo muticus*', *tərkuət 'tree monitor lizard *Varanus nebulosus* or *bengalensis*' and *tənyuːʔ 'binturong' or the 'bear cat *Arctitis binturong*', a black tropical mammal that is the largest of the civet cats. All of these species are not native to areas that currently lie within China, and, to our present knowledge, these species never were native to the area that is today China. More reconstructible Proto-Austroasiatic roots indicative of a tropical or subtropical climate are adduced by Diffloth (2005: 78), i.e. *(bən)joːl ~ *j(ərm)oːl 'ant eater, *Manis javanica*', *dəkan 'bamboo rat, *Rhizomys sumatrensis*' (an Austroasiatic root which has found its way into Malay as a loan), *kaciaŋ 'the Asian elephant, *Elephas maximus*', *kiaç 'mountain goat, *Capricornis sumatrensis*', *rəmaːs 'rhinoceros, *Dicerorhinus sumatrensis*' and *tənriak 'buffalo, *Bubalus bubalus*'.

Finally, Diffloth (2005: 78) points out a fact long noted by scholars of Austroasiatic linguistics, e.g. Osada (1995), namely that a rich repertoire of reconstructible roots representing ancient rice agriculture is robustly reflected in all branches of Austroasiatic, viz. *(kə)ɓaːʔ 'rice plant', *rəŋkoːʔ 'rice grain', *cəŋkaːm 'rice outer husk', *kəndək 'rice outer husk', *pheːʔ 'rice bran', *təmpal 'mortar', *jənreʔ 'pestle', *jəmpiər 'winnowing tray', *guːm 'to winnow', *jərmuəl 'dibbling stick' and *kəntuːʔ 'rice complement', i.e. accompanying cooked food other than rice.

Nicole Revel (1988) contributed one of the most elaborate ethnobotanical studies on rice, rice cultivation practices and rice terminology in various Asian language communities. The other main candidate for early cultivators of rice are the ancestral Hmong-Mien. Great strides have been made in our understanding of Hmong-Mien historical phonology (Haudricourt 1954, Purnell 1970, Wáng and Máo 1995, Niederer 1998), although the reconstructible lexicon specific to rice cultivation is less impressive than the Austroasiatic repertoire. The three Hmong-Mien etyma relating to rice cultivation that appear to be original to the linguistic phylum are *ntsəːi 'husked rice, *ɲaːŋ 'cooked rice' and *n̥jeŋ 'rice head, head of grain', whereas the Hmong-Mien terms for glutinous (rice), (paddy) field, sickle, rice cake and (rice) seedling 'are likely to have had a Chinese origin' (Ratliff 2004: 158-159).

The rice story is complex, and the plot of the story has changed more than once in recent decades. Whereas the origin of rice cultivation was once held 'incontestably' to have lain in the Indian subcontinent (Haudricourt and Hédin 1987: 159-161, 176), subsequent scholarship moved the homeland of rice agriculture from the Ganges to the Yangtze. For years conventional wisdom in archaeological circles dictated that rice was domesticated in the Middle Yangtze, perhaps as early as the sixth millennium BC.

More recently, scholars have increasingly begun to take note of findings that would move the original homeland of rice cultivation back to the Indian subcontinent. Against the background of older datings of domesticated rice and ceramic culture from Gangetic basin and Doab sites such as Koldihawa and Mahagarha, reportedly dating from the seventh millennium BC (Sharma *et al.* 1980, Pal 1990, Agrawal, 2002), there are now newer sites with more reliable dates at Lahuradewa (Lahurādevā), Ṭokuvā and Sarāī Nahar Rāī.

At the Lahuradewa site (26°46' N, 82°57' E), the early farming phase, corresponding to period 1A in the site's clear-cut stratigraphy, has radiocarbon dates ranging from ca. 5300 to 4300 BC. Carbonised material from period 1A was collected by the flotation method, yielding *Setaria glauca* and *Oryza rufipogon* as well as a morphologically distinct, fully domesticated form of rice 'comparable to cultivated *Oryza sativa*' (Tewari *et al.* 2002). More recently, accelerator mass spectroscopy dates were obtained on the rice grains themselves, corroborating the antiquity of rice agriculture at the site.

Most recently, new radiocarbon dates for rice agriculture have been coming from the Ganges basin, with the Ṭokuvā site near Allahabad now yielding similar dates (Vasant Shinde [Vasant Śivarām Śinde], personal communication 27 November 2007), and exciting new dates for ancient rice agriculture are also emerging from Sarāī Nahar Rāī (Manjil Hazarika, personal communication 7 March 2008). Of course, we are living at a time when a more reliable calibration of radiocarbon dates in general has become a matter of great urgency. At the same time, as Prof. Rām Dayāl Muṇḍā of Ranchi University

pointed out in his inaugural address at the opening session of the 3rd International Conference on Austroasiatic Linguistics (ICAAL 3), the bulldozer effect of globalisation in present and former Munda areas is effacing the traces of ancient Austroasiatic archaeology and palaeobotany.

Further east, at least five species of wild rice are native to northeastern India, viz. *Oryza nivara, Oryza officianalis (O. latifolia), Oryza perennis (O. longistaminata), Oryza meyeriana (O. granulata)* and *Oryza rufipogon*, and reportedly over a thousand varieties of domesticated rice are currently in use in the region (Hazarika 2005, 2006a). The different varieties of rice in northeastern India are cultivated in three periods by distinct cultivation processes. In the process of *āhu kheti*, the rice is sown in the months of *Phāgun* and *Sot*, i.e. mid February to early April. The seedlings are not transplanted but ripen in just four months in fields which must be constantly weeded. In *bāu kheti*, the rice seedlings are sown from mid March to mid April in ploughed wet fields and likewise do not need to be transplanted. In *śāli kheti*, the rice is sown from mid May to mid June, and the seedlings are transplanted. *Śāli kheti* rice varieties are suspected to derive from the wild *officianalis* rice still widely found in swampy village areas. The wild *rufipogon* rice cannot be used for human consumption because the plants shed their seeds before they ripen, so that *rufipogon* rice is used in Assam and other parts of northeastern India as cattle feed (Hazarika 2006b).

Whilst claims have been published of rice cultivation in East Asia as long as around 10,000 BC, the currently available evidence indicates that immature morphologically wild rice may have been used by foragers before actual domestication of the crop, e.g. at the 八十擋 Bāshídàng site (7000-6000 BC) belonging to the 彭頭山 Péngtóushān culture in the Middle Yangtze and at sites in the Yangtze delta area such as 跨湖橋 Kuàhúqiáo, 馬家浜 Mǎjiābāng 河姆渡 (5000-3000 BC) and Hémǔdù (5000-4500 BC). However, only ca. 5000 BC was the actual cultivation of rice probably first undertaken by people in the Lower Yangtze, who at the time relied far more heavily on the collecting of acorns and water chestnuts (Yasuda 2002, Fuller 2005a, 2005b, 2005c, 2006a, 2006b, 2006c, 2007a, 2007b, Fuller *et al.* 2007, Zong *et al.* 2007). There is also currently no evidence for the co-cultivation of rice and foxtail millet along the middle Yangtze until around 3800 BC (Nasu *et al.* 2006).

Today, our understanding of the palaeoethnobotanical picture is more complex. The two main domesticated varieties of rice, *Oryza indica* and *Oryza japonica*, are phylogenetically distinct and would appear to have been domesticated separately. *Oryza indica* derives from the wild progenitor *Oryza nivara* and was first cultivated in South Asia or western Southeast Asia, perhaps in two separate domestication events. On the semi-arid Gangetic plain at the end of the mid-Holocene wet period, habitats for wild rices increasingly shifted to oxbows as palaeochannels dried up and turned into oxbow ponds. This shift favoured monsoonal rather than marshland rice species, including *Oryza nivara*, the wild progenitor of *Oryza indica* (Fuller 2006a).

Oryza japonica derives from the wild progenitor *Oryza rufipogon*, and it is currently believed that the *rufipogon* variety was first cultivated to yield early *Oryza japonica* along the Middle Yangtze. Harvey *et al.* (2006) have critically reassessed the morphometrics of rice finds associated with various Neolithic sites throughout the Yangtze basin in light of recent genetic findings. It appears that the wild progenitor *Oryza rufi-*

pogon was not fully domesticated in the Lower Yangtze to yield early *Oryza japonica* until ca. 4000 BC. Generally, the archaeological record shows a delay of one to two millennia between the beginning of cultivation and the first clear evidence of domestication *sensu stricto*, i.e. genetic modification by selective breeding.

Twelve wild forest-margin rice species are known, found mostly in Southeast Asia as well as at old sites of human habitation, e.g. Jiǎhú in the seventh millennium BC or Hémǔdù in the first half of the fifth millennium BC. Extinct wild varieties of rice also appear to be preserved in the modern *japonica* genome. Based on the genetics of the *officianalis* variety, the seasonally wet, puddle-adapted *Oryza nivara*, and the always wet perennial *Oryza rufipogon*, there may be evidence for multiple rice domestications in South, Southeast and East Asia. So, maybe the domesticators of *Oryza nivara* were ancient Austroasiatics, and maybe the domesticators of ancient *Oryza rufipogon* were ancient Hmong-Mien.

O'Connor (1995) and Blench (2001) have argued that irrigated rice agriculture enabled people to seize control of lowlands and flood plains. People were able to move down from upland areas that had hitherto been more favourable habitats after wet cultivation had transformed lowlands from epidemiologically undesirable places into bountiful habitats. But what if the first cultivators and domesticators of rice already inhabited lowland river basins and flood plains, such as the Ganges or Yangtze basins or even the Brahmaputran flood plains?

Turning to northeastern India and the Indo-Burmese borderlands, we must recognise that, notwithstanding the excellent archaeological work conducted in the Ganges and Yangtze river basins, much of the archaeology of ancient rice agriculture is simply not known because no substantive archaeological work has been done on the Neolithic in the most relevant areas, e.g. northeastern India, Bangladesh and Burma. The sheer dearth of archaeological research in these areas leaves entirely open the possibility that rice cultivation may have originated in this region. We might expect to find traces of ancient farming communities better preserved in the hill tracts surrounding the Brahmaputran flood plains than on the fertile fields themselves, although the earliest rice-based cultures may first have developed on those very flood plains. Perhaps the remains of the first rice cultivating cultural assemblages lie buried forever in the silty sediments of the sinuous lower Brahmaputran basin or were washed out by the Brahmaputra long ago into the depths of the Bay of Bengal.

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Andamanese Mythical Signatures Linking Gondwana Mythology With The Laurasian Cluster

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Abstract: The Gondwana and Laurasian mythological groupings and pre Out of Africa mythological package have already been proposed. In this study we attempt to situate the Andamanese anthropogonic myths to locate their deep rooting and probable links with the world mythological substratum. Using the Andamanese mythological motifs, we compared them with the world mythological corpus, especially with the African and Australian corpus and found resemblances along with several exclusive motifs. To understand the primordial connectivity of Andamanese mythology, we examined the presence of the Out of Africa mythological package in the Andamanese corpus. Our results indicate that Andamanese mythology has deep rooting in the Gondwana lineage proposed by Witzel. The Out of Africa package suggested by Witzel and van Binsbergen's pre-Out of Africa package are corroborated by Andamanese Mythology. The admixture seen in Andamanese mythology suggests that it occupies an interim cluster between the Gondwana and Laurasian mythological lineages. It was not exclusive to Gondwana and also it was not much exposed to Laurasian. Andamanese mythology maintains a fundamental Gondwana character but includes, by diffusion, a few initial traits of Laurasian myth, which in turn indicates the Gondwana type as India's primordial mythological lineage. The subsequent influx of Laurasian mythology has inundated this pre-Neolithic lineage from mainland India. The Indian subcontinent abides both mythical lineages but is strongly represented by the Laurasian type today. The admixture pattern designates Andaman mythology as an interim cluster within the larger Gondwana and Laurasian types. However, the results of this study are in full support of the Gondwana clustering proposed by Witzel.

Phylogeny is the genomic narrative of reconstruction that provides convincing scenarios of human origin and migration. "Genetic archaeology" in essence is all about culture, although it purports to be about genes. The late Paleolithic era is widely known for population expansion and cultural innovation (Cavalli-Sforza et al. 1994; Kivisild et al. 1999; Quintana-Murci et al. 1999; Underhill et al. 2000; 2001, Cann 2001). The Paleolithic component of the Indian gene pool is attested by the Indian specific mtDNA lineages M, R and U (Kivisild et al. 1999, 2000, 2003; Quintana-Murci et al. 1999). Presence of M abounds among the Indian population, cutting across linguistic boundaries (Kivisild et al. 2000, Bamshad et al. 2001). M is regarded as the genetic marker for the early, southern migration route of humans from the Indian sub-continent towards the east. Thorough understanding of the deep rooting of this mtDNA lineage has immense significance in mapping the founder population base of India in space and time. The M31 and M32 lineages recorded from the Andaman hunter and gatherer populations (Thangaraj et al. 2005, Barik et al. 2008), Pauri Bhuiya (Barik et al 2008) and from the Rajbanshi on the Bengal/Nepalese border (Palanichamy et al. 2006) corroborate the

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theory of a one wave, rapid dispersal of modern humans all along the Asian coast –the "Southern Hypothesis" (Cavalli-Sforza et al. 1994, Lahr and Foley 1994). The molecular reconstruction of the maternal and paternal ancestry is based on the conjecture of monogenesis. It intends to unfold the history and geography of genes (Cavalli-Sforza 1994) and describes the degree of diversity that exists, or the rate of diversification, but it fails to explain what causes population divergence.

In recent decades, there has been increasing support also from other disciplines for the origin and diffusion of modern humans. Supplementary evidence is now available from linguistics and mythology that favors the African origin of modern humans and the Out of Africa Diaspora (Ruhlen 1994; Witzel 2001, 2008). Substantial correlations between modern language and gene distributions as links between language, demographic movement and genetics in prehistory have been well established (Cavalli-Sforza 1994; Renfrew 1992; Renfrew and Boyle 2000), and the monogenesis of human origin and language has been proposed through reconstruction (Ruhlen 1994). There are various other linguistic attempts aiming at reconstructing the past (Nichols 1992; Pagel 2000). All these studies are not deterred by the proposed 'canonical' limitation of historical linguistics beyond 8000 years b.p. Mythological patterns mapped by Witzel (2001, 2008) are another source of evidence found in support of `Out of Africa` hypothesis. All these attempts of reconstruction have laid out a grid of the prehistory of the anatomically modern humans by examining the patterns of genetic phylogeny, archeological assemblages, language phylogeny and mythological distribution.

The genetic antiquity of the Andaman Negritos indicates that India was a Paleolithic host land. The genetic landscape of the Andaman Islands is polarized by two hypothetical propositions: most significantly, the islanders are seen as the direct descendants of the first wave of the Out of Africa migration (Endicott et al. 2003, Thangaraj et al 2005). Subsequently, Thangaraj et al. (2006) clarified that "M sub-lineages suggesting 'in-situ' origin of these sub-haplogroups in South Asia, most likely in India." The other proposition is that the Andaman Islanders stem from the Indian subcontinent rather than from East Africa or East Asia (Palanichamy et al. 2006). Based on the age of splitting the sister clades of M31 into Island specific M31a1 and Mainland specific M31a2, it has been claimed that Andaman colonization cannot be fixed at the time of Out of Africa migrations (Endicott 2006, Barik 2008). More recently, Barik et al. (2008) postulates that the haplogroup M31 evolved on the Indian mainland and later populated the Andaman Islands during upper Paleolithic times. Based on the available genomic inferences on M31 and M32, Witzel's (2008) summation is "While the Andamanese genetic data point to an early separation for the ex-Africa lineages at c. 65 (+ 7) kya, which may have been confirmed by recent excavations in South India that point to c.75 kya (Petraglia et al 2007), those of their subcontinental relatives are younger at c.46/45 kya. Taken together they reconfirm an 'Andamanese' type settlement in large parts of India already by 60 kya, while the south seems to have had Australian types of genes and linguistic substrates". It is plausible to say, there was an old substratum representing first wave of 55c kya on the mainland that later evolved into the current Andamanese, Rajbamshi, Paudibhuiya, Kurumba and maybe some other groups which have not yet been surveyed. A reassessment of all the sister clades of M31, 32 in the subcontinent and the Great Andamanese and Onge-Jarawa specific sub-lineages, shows

an early divergence of Andaman clades but does not confirm their settlement in the Islands at the time of initial migration. Barik et al. (2008) postulates "splitting of hg M31a1 (Island specific) and M31a2 (Mainland specific) yielded dates well into the late Pleistocene at 24 (±9) thousand years ago (kya), whereas the coalescence estimate for the Andaman-specific branches (<12 kya) clearly postdates the Last Glacial Maximum (LGM)". Deep rooting of these lineages evidently recapitulates the in-situ origin of these sub haplogroups in India. Nevertheless, the Andaman specific subclades suggest a high degree of genetic as well as cultural isolation between the Andamanese and Onge-Jarawa as it is visible in their languages too. Archaeology attests to the peopling of the Andamans at max. 2200 years bp (Cooper 2004). Instead of encompassing Pleistocene antiquity, Holocene colonization is envisaged in Andamanese legends (Sreenathan et al. 2007). The presence of 2156insA in both M31 and M32 amongst the Andaman Islanders confirms that they are derived from the same common ancestor carrying 2156insA (Barik et al. 2008). In a nutshell, the Andaman genetic reconstruction clearly corroborates the southern route hypothesis.

Reconciling genes, language, mythology, archaeology, population movements, ecology etc. in understanding human prehistory is quite appreciated nowadays. Harding et al. (1997) have revealed that 'Asian' lineages have played an important role in human ancestry. The same is true for other representative Asian components. The Paleolithic continuity in genetic structure of the contemporary Indian population appears to be entirely counter to our present understanding of the relationship between time-depth and linguistic diversity of India. The Indo-Aryan, Austro-Asiatic, Dravidian and Tibeto-Burman families are regarded as Neolithic immigrants to India. A picture of language/ gene discontinuity emerge. Pleistocene genetic antiquities with a Neolithic expression contrast with India's current language landscape. It indicates that the ethno-linguistic diversity of Paleolithic time was lost due to the later influx from outside the continent that has overwhelmed the then resident groups. The pre-Neolithic linguistic diversity of India has been replaced, however with the exception of the Andamanese family. There are attempts to link the Andamanese family with the Indo-Pacific phylum (Greenberg 1971), particularly to see Kusunda of Nepal as a part of Papuan (Paul Whitehouse et al. 2004) and Proto- Austronesian (Blevins 2007). While discussing the prehistory of the Indo-Malaysian Archipelago, P. Bellwood (2007) has shown evidence of common ancestry between Negritos and Mongoloids and the genesis of the Austronesian, Tai-Kadai, Hmong-Mien and Austro-Asiatic language families, as the result of the dispersal out of southern China and Northern mainland South East Asia - a zone located between Yangtze and northern Thailand/Indo- China. The results point to a distant erstwhile substratum common to South East Asia and the Pacific. Future research may confirm the phylogenetic relation of the Andamanese family with the ancestry of the world's languages.

Supporting the genetic positioning of the Andaman Negritos as part of the Out of Africa exodus by the evidence of Andamanese mythology is indeed the theme here. Andamanese mythology is revaluated here in order to obtain a focus of its pattern. Myths and legends explain the origin of the world, people, ethics, etc. These are deeply rooted in the prehistoric experience of the respective culture. It is not often possible to connect myths and legends with real or archaeological evidence, but such attempts may contain

certain facts that inspire research. Knowing our predecessors' cognitive capacities and behavior, is equally significant in understanding the evolution and dispersal of humans. The Paleolithic inheritance of aesthetic traits reported from Andaman hunters (Sreenathan et al. 2007) suggests Paleolithic continuity. This paper is an attempt to associate Andamanese mythology with their genetic archeology in order to expose the pre-Exodus and post-Exodus patterns of their mythical traits.

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The mythical oral narratives of Anthropogony are very old, and hence, they are regarded as significant for cultural reconstruction. According to Witzel (2001) comparative mythology can offer complementary evidence supporting the 'Out of Africa' hypothesis. The migration routes and spread of cultural packages are traceable.

The approach adopted here is to explore the genuine realm of the Andamanese mythological motifs within the frame of Stith Thompson's (1955) model in order to establish their relation with the proposed Gondwana and Laurasian mythological patterns (Witzel 2001). It further evaluates the status in Andamanese mythology of the pre-Out of Africa narrative complexes as proposed by W. van Binsbergen (2005) and Witzel (2008). Unlike the earlier mode of explanation of mythical universals attempted by Lévi-Strauss, Jung, Campbell, Bauman, or Stith Thompson, the mythological archeology model (Witzel 2001, 2008, van Binsbergen 2005, 2006) is temporally more valid as it corresponds with the phylogeny model of genetics and linguistics. The theory of evolution is only 150 years old, while creation stories are as old as human civilization. This study is intended to show that the universals in human culture could be traced like genes, and the affinities of populations through their respective mythological packages. It is a preliminary approach, intended to place Andamanese mythical motifs about human origin within the proposed intercontinental mythical complex.

Creation stories generally convey the origin of everything. In this study, the origin of humans traced in detail. The general presumptions inferred from the creation myths are: ex nihilo (a deity creates the universe out of nothing) – the universe develops on its own, cosmic egg, creation of humans by a creator/Supreme Being, humans are molded from clay/dust, etc. In general, the world's creation myths basically focus on these motifs, including 'Genesis'. They appear either single or in combined form but maintain a universal spread. In some areas, we can see the presence of a great flood in the creation myths. These myths are found in countries and cultures as diverse as Europe, Near East, Africa, Far East, Australia and Pacific Islands, South, North and Central America. (http://www.talkorigins.org/pdf/flood-myths.pdf). The Andamanese, too, share the flood myth, though with the exception that this is connected with their dispersal and not their origin (E.H. Man 1932).

Like all cultures, the Andamanese encountered the basic question of their origin. Origin myths (E.H. Man 1932, A.R. Radcliffe Brown, 1964) reflect their perception on origin. According to Stith Thomson's motif index, the Andamanese motifs of anthropogonic myths appear as follows (Table 1).

Table 1.

Motif Index number (Stith Thompson)	**Motif**	**Presence in Andamanese mythology**	**New motif identified from Andamanese**
A1200	Creation of Man	Yes	
1210	Creation of man by creator	Pulugu, Biliku, Tomo, etc. are creators	
A1224	Descent of man from animals	Monitor lizard, the progenitor of the Andamanese	
A1241	Man made from clay	Jutupu made other people from clay	Jutupu took some clay from a nest of white ant's and molded it into the shape of a woman
A1250	Man made from vegetable substance	Yes	
Cf.A1236) A.1251 A.1256.1	Mankind emerges from tree Man made from grass		The first man came out of a bamboo. The first man came out of the buttress of a tree
A1252	Creation of man from wood		First man's mate was made from transformed wood (a piece of wood turned into a woman)
1275.7	First man created from nothing, wanders around until he finds mate		
A1263.6(1)	Man created from part of body		Created woman by cutting male genitals
A1271	Origin of first parents	Pulugu made one man and one woman	
A.1275	Creation of first man's (woman's) mate		1. Man creates a woman from clay 2. Creator makes man and then woman

Let us further look at the resemblance between the Andamanese and African creation stories. Every culture has its own way of explaining the origin of humans. Most of the world's cultures, despite differences in space and time, project the idea of a creator. The Andamanese creation stories have certain thematic similarities with African creation

stories. The Zulu creator Unkulunkulu, came from reeds and the creation story of one of the Andamanese groups (Aka-Bo) confirms that Jutupu, the first man, was born from bamboo. Certain African stories of the Creation of Man that was first made from clay (Ocolo (Sudan), Shilluk and Yoruba) resembles the Andamanese one. Belief of a Supreme Being as the creator is established well in the Sub-Saharan African conception. Mythical evidence come from all regions of Africa: Juok is the creator for Ocol (Shilluk of Sudan); the Zulu of South Africa regard Unkulunkulu as creator; it is Mwari for the Shona of Zimbabwe and Olorun for the Yoruba of West Africa, Woyengi for the Igbo of Nigeria, Waqa for the Oromo of Ethiopia, Mulungu for the Wapangwa of Tanzania; the Bushongo of Congo believe in Bumba and Bulu of Cameroon in Mebu. Among the Andamanese groups, too, the concept of a creator is quite evident. Maia Cara (with the Aka Jeru), Biliku (Aka Kede) and Puluga (South Andamanese) are regarded as creators. Despite the diversity of the stories and their spatial and ethnic origin, commonality in mythemes is observable in African and Andamanese creation stories. Another resemblance is the conspicuous absence of female energy in creation myths. In both traditions the female is created after the male. Likewise, some rare features of Australian mythical traits are found in these stories.

Myths of the origin of the world are not found in Australia, Melanesia, Sub-Saharan Africa and Andaman. The Todas in the Nilgiris (South India), Semang and other Negritos in Malaya, Aeta in the Philippines and some mountain aboriginal tribes of Taiwan are also maintaining this trait, though many of these groups have shifted from their original mother tongue (Witzel 2008). There are only scanty references about the sky, earth and other natural features, without any account of their origin; the same is the case with Andamanese. Rather, the origin of mankind is the focus. Motifs regarding human origin, such as independent origin, creation by a creator etc., are deeply rooted in Andamanese mythology too. One Australian motif of human origin, the incomplete being that was then sculpted as human, is evident in the Andamanese mythology but the frame of reference is not human. One may refer to Inapertwa (Arunta tribe of Central Australia): "They had no distinct limbs or organs of sight, hearing or smell, and did not eat food, and presented the appearance of human beings all doubled up into a rounded mass in which just the outline of the different parts of the body could be vaguely seen." They were later sculpted as humans. A closely similar story that relates how the pig first got its senses – they had no eyes to see, no ears to hear and no nostrils to smell and had no mouth and later all these parts were made. Another legend tells of the appearance of "Cana Elewadi (First woman) as a pregnant being who came to Kyd Island, where she gave birth to several male and female children, who subsequently became the progenitors of the present race." This is quite similar to that of another Australian origin story. The Kakadu people of Australia believe that Limber Combera, the mother ancestress, was pregnant when she came to the area, and that the Australians are the descendants of her children. A tale from Victoria records the origin of the first women says that two women were extricated from a deep water hole. A corresponding story of the first appearance of a woman and her sister from a turtle's belly is found among the Onges (V. Pandya, 1993).

However, whether this comparative account corroborates the concept of the Andamanese as being remnants of the first wave of African emigration is a matter to be looked at in the light of Out of Africa 'narrative complex package' proposed by van

Binsbergen (2005, 2006) and Witzel (2008). According to Witzel (2001) Gondwana mythology (found in Australia, New Guinea and sub- Saharan Africa) altogether lacks motifs such as creation myths that tell the origin of the world or female witches but is characterized by an emphasis on the emergence of humankind in an already existing world. On the contrary, Laurasian mythology (found in Eurasia, North Africa and the Americas) emphasizes the creation of the world.

Andamanese mythology is comparatively weak in cosmogony myths. There are scanty references to creation of earth, sun and moon, by the same creator of human beings. The creators are Maia Cara, Biliku, and Tomo. The creation of sun is referred in one myth as "one large fire brand she (Biliku, the-creator) threw into the sky and there it became the sun," as found in Thompson's motif A714 (Micronesia, Australia). There is another reference that the Sun as fire is rekindled every morning (A712), which also is an Australian myth. For instance, "Puluga obtained fire by stacking in alternate layers two kinds of wood known as *cor* and *ber*, and then bidding the sun to come and sit on or near the pile until she ignited it, after which she returned to her place in the sky." A popular motif, raising of the sky (A625.2), is found in Andamanese mythology as follows: "Porokul (Biliku's husband) made for himself a bow. At this time the sky was low down near the earth only just above the tops of the trees. When Porokul had finished his bow he lifted it upright. The top of it struck the sky and lifted it up to its present position where it has remained ever since." There also are brief references about the earth and the sky as different worlds, which suggest motifs like the separation of heaven and earth and the connection between heaven and earth. All these however do not at all support the central cosmogonic narrative complex. Rather, they peripherally touch on some aspects of cosmogony. Resemblances are found in the origin of sun in the Australian stories, such as: the sun was made by throwing an emu's egg into the sky (among the tribes of the South-East Australia) and: a fire-brand ascended the sky (Arunta and other tribes of the Central Australia).

These results support the view that Andamanese mythology is closer to Gondwana mythology which has weak cosmogony myths (Witzel, 2001) rather than to Laurasian mythology. It is quite clear that the distinctive characterization of the origins of universe and various generations of gods identified in Laurasian mythology is not supported by Andamanese mythology. On the contrary, the emphasis on the origin of man lets Andaman mythology appear closer to Gondwana mythology. The Flood Myth however links Andaman mythology to both Gondwana and Laurasian mythology. The common motif of the Flood or Deluge Myth is widely shared among peoples in the whole world. Associated contents are the origin of different peoples, dispersal of groups and punishment of the wrongdoings of human beings. The myth has received much scholarly attention due to its wide appearance. Various opinions are in vogue about its origin and spread. It has been considered as a South Asian myth (Dang Nghiem Van 1993). Van Binsbergen (2005, 2006) regards it as a motif of Central Asian/Southeast Asian origin. He is of the opinion that the Flood Myth and the mtDNA type B (derived from haplogroup N) emerged in Central Asia around c. 35ky bp, and that this association is missing only in the Andaman Islands, some regions of Australia, in Europe and the Ancient Near East. These exceptions are explained in three terms as a result of secondary diffusion through shamanism or by the Sunda hypothesis, and least convincingly by

considering them as part of Out of Africa package van Binsbergen (2006). However, Witzel (2008) recognized it as a common myth due to its wide presence in Europe, N, E, SE Asia, India, N. and S. America. Thus, he listed it as a myth common to a Laurasian and Gondwana mythology. Its universal presence and its thematic associations undoubtedly suggest it as a pre-Out of African myth, when we regard it as part of the hypothesis of southern expansion. Its presence without the association of mtDNA B in the Andamans and Australia indicate such a possibility. At the same time, it is plausible to see it as part of secondary diffusion or as a common innovation. For instance, the Flood Myth is not accompanied in all regions by its sister myths, designated in the Out of Africa package. The (Austro-Asiatic: Munda) Santal clearly attest in their origin myth a cosmic egg along with the flood. Parallel correspondences are not found in Andamanese mythology. Santal myth shares the "Sun, Moon, Stars" motif with the Semang in Malaya, a feature that is absent among the Andamanese. This shows that carrying a common motif does not ensure the complete retention of the Out of Africa package. Secondly, the amount of thematic diversity bestowed on the Flood Myth allows us to consider it a common innovation in all groups and regions that got exposed to a common catastrophe, which has served as a bottleneck event at one or different times. There are many instances of localized flood specified in prehistory.

In the Andaman context, the image of rising water levels has often been referred to in accounts of the islands (Man 1932, Radcliffe-Brown 1964, Pandya 1993), as a kind of disaster occurring since mythical times. The neighboring Nicobarese, many groups among the Munda (Munda, Ho, Santal etc.) and some other groups in the subcontinent (Dravidian, Indo-Aryan) share the Flood Myth, though with relative differences in its individual theme. The present Andamanese population is considered to be the descendants of the survivors after the Deluge. The obvious absence of popular motifs like Father Heaven and Mother Earth, true cosmogony, etc., keeps Andamanese mythology separate from the Laurasian one. This by itself does not indicate that the Andamanese mythology is the sole representative of Gondwana mythology in the subcontinent or that no Laurasian trait is visible in the Andamanese mythology. The isolated status of the Andamanese indicates a lack of possibility for diffusion of abundant Laurasian motifs that are found on the mainland. However, from genetic reconstruction, we realize that their isolation is not as old as expected. No doubt, Andamanese mythology has absorbed certain traits of Laurasian mythology. The interesting trend visible in the Indian context is that some groups show a pattern of Gondwana and Laurasian admixture, that some other groups show Laurasian traits, and that no group is found with exclusively the Gondwana type. Indeed, the frequency of the Laurasian influx varies between groups; among them Andamanese mythology attests minimum exposure to Laurasian traits. These trends define that India's primordial mythical lineage was of Gondwana type and that the subsequent influx was of Laurasian type. The Indian subcontinent contains both mythical lineages, but leans more to the Laurasian one. This position of India tempts us to say that India comes under Laurasian umbrella, with some inherent Gondwana traits. In general, Gondwana traits are either replaced or inundated by Laurasian ones. The remnants of Gondwana mythical survivals thus form an *interim cluster* in the overall spatial patterning of mythology, regarded as Gondwana and Laurasian. The Andamanese mythologies, as briefly discussed earlier, thus confirm their status as an interim cluster

between the distinct Gondwana and Laurasian types. Witzel (2008) describes Gondwana elements in Laurasian myth and reverse. Subscribing to such a view in the Andaman context may not yield satisfactory explanations for the admixture pattern found among the Andaman tribal groups.

The following table (Table 2) attempts to show the link between Andamanese mythological motifs with van Binsbergen's (2005) 'pre-Out of Africa' package (Motifs: 4, The lightning bird and the world egg), 10 (The earth as primary, & 13 (The cosmic rainbow); this has subsequently been revised (van Binsbergen 2006): the package (4 The lightning bird (and the world egg), 9 The Moon, 10 The earth as primary (10 was subsequently revised towards cattle in the Neolithic), 12 From under the tree, 13 The cosmic/Rainbow snake and 15 The spider (and feminine arts, a subsequent revision in the proto- Neolithic).

Table 2.

	Narrative Complex (Wim van Binsbergen)	**Proposed time of origin**	**Anda-manese**	**Remarks**
1	The separation of heaven and earth		+	
2	The connection between heaven and earth after separation: proto-Neolithic c. 10,000 BP	Fertile Crescent; Haplogroups R and M1	-	
3	What is in heaven?		-	
4	The lightning bird (and the world egg)	Sub-Saharan Africa - Pre-Out-of-Africa Middle Palaeolithic 80,000 BP and earlier	Bamboo connected with human origin indirectly reflects primordial egg	The Blombos block, and string figures in Africa and Australia, as evidence of NC 4: 'The Lightning Bird' (van Binsbergen 2006). The same geometric designs are found among the Andaman groups (Sreenathan. *et al.* 2007) Middle Paleolithic reference of the same in eggshell was reported from India.
5	The mantis: Middle Palaeolithic, c. 70,000 BP	W/C Asia (2005) - W/S Asia (2006) related to mtDNA-M&N	-	If it is associated with mtDNA M, the absence of this motif in Andamanese mythology is significant and needs to be explained

	Narrative Complex (Wim van Binsbergen)	Proposed time of origin	Andamanese	Remarks
6	Escape from the ogre: Middle Palaeolithic, c. 35,000 BP	C/S/SE Asia (2005), West Asia? (2006); weak association with halo-groups B and A	-	
7	From the mouth: Neolithic or Bronze Age c. 5,000 BP	Fertile Crescent	-	
8	The stones			
9	The moon: Pre-Out-of-Africa, Middle Palaeolithic 80,000 BP and earlier	Sub-Saharan Africa -	-	
10	The earth as primary (10 subsequently revised towards cattle, in the Neolithic)	Sub-Saharan Africa - Pre-Out-of-Africa Middle Palaeolithic 80,000 BP and earlier	+ Concept of earth as primary is strongly evident	
11	The primal waters and the flood: Middle Palaeolithic, c. 35,000 BP	Yes C/S/SE Asia (2005) C/N Asia (2006) Haplogroup B (out of N)	+ strongly evident	
12	From under the tree	Sub-Saharan Africa - Pre-Out of Africa, Middle Palaeolithic; 80,000 BP and Earlier	+ reference from tree is present	
13	The cosmic / rainbow snake	Sub-Saharan Africa - Pre-Out of Africa; Middle Palaeolithic 80,000 BP and earlier	-	
14	Fundamental duality: Neolithic to Iron Age c. 3,000 BP	Fertile Crescent	+ evident	Whatever the origins of this, it is typical also far sub-Saharan Africa. And it can be found in the Andamans: the opposition is found in sub-Saharan Africa, Andamans and America; Witzel)

	Narrative Complex (Wim van Binsbergen)	Proposed time of origin	Andamanese	Remarks
15	The Spider (and the feminine arts, a subsequent revision in the proto-Neolithic)	Fertile crescent (2005) Sub-Saharan Africa - Pre-Out of Africa, Middle Palaeolithic; 80,000 BP and earlier (2006)		It is found also in the Americas, prominently in N. America as "changing woman". The Amerindian migration (20/11kya) is too early for influences from the fertile crescent (the fertile crescent was posited by van Binsbergen 2005)
16	Shamanism, bones	W/C Asia Middle Palaeolithic, c. 40,000 BP Haplogroups N (H, A, B)	+ Skeletal remains (skull and mandible) used as ornament (respect of deceased).	Found with the Bushmen, Andamanese and Australians as well, though not in its classical Siberian form. The use of bones is not prominent with the with the Bushmen, but they play a greater role in the Andamans and Tasmania (Witzel, pers. comm..)
17	Spottedness and the leopard		-	
18	Honey and honey-beer		-	
19	The cosmogonic virgin and her son/ lover: proto-Neolithic c. 10,000 BP	Fertile Crescent Haplogroups R and M1	-	
20	Contradictory messengers bring death		-	Reported from E.Africa, the Arctic, Japan, Eastern Siberia, Meso-America, Western Amazonia (Yuri Berezkin)

The following table (Table 3) shows that the Out of Africa mythical universals proposed by Witzel (2008) are evident in Andamanese mythology.

Table 3.

Narrative Complex	Sub-Saharan Africa	Andamans	Australia	Melanesia
In the beginning heaven and earth (and the sea) already existed	+	+	+	+
A high God lived in Heaven	+	+	+	+
A series of lower gods, often children of the High God, act as tricksters and Culture heroes	+	+	+	+
The primordial period is ended by some evil deed of the son of the High God (or by humans)	+	+	+	+
Humans are created from trees and clay (or rock; occasionally they descend directly from the Gods/totem ancestors)	+	+	+	+
Humans act haughtily or make a mistake; punishment ensures by great flood; humans reemerge in various ways	+	+	+	+
An end to the world is missing	+	+	+	+

The following table (Table 4) examines Andamanese mythology based on the discontinuity between Gondwana and Laurasian proposed by Witzel (2001, 2008)

Table 4.

Narrative complexes	Gondwana	Laurasian	Andamanese
Cosmogony	-	+	-
Anthropogony	+	+	+
From tree	+	Sporadically in Laurasia (Witzel 2008)	+
Flood myths*	+	+	+
Cosmic egg	-	+	-
Father Heaven/Mother Earth	-	+	-
History as cyclical	+	-/+	+
History as epic/ linear	-	+	-
'Kings' and heroes	-	+	-

From the above, it is clear that the Andamanese mythology is characteristically closer to Gondwana traits. Nevertheless, some Laurasian features are found in Andamanese mythology. Looking at the Andamanese motifs in relation with the proposed contexts of mythological innovations and transformations from middle Paleolithic onward (van Binsbergen 2006), one can strongly argue that the Andamanese mythology confirms

Witzel's typology that includes Andamanese mythology under Gondwana. Minimal Laurasian traits in Andamanese mythology indicate that they held to an interim cluster with regard to the Laurasian and Gondwana mythologies, which suggests their Pleistocene antiquity and later isolation. Motifs like the transformation of man into animals, fire myths, bird myths, etc. show more of a Laurasian touch, especially one closer to South-East Asia. The corroboration of these facts by the evidence of haplogroups M31, 32 suggests Holocene colonization of the Andamans without challenging their Pleistocene antiquity.

The emerging picture, by comparing the 'genetic archeology' with the dominant mythological patterns, is that the M31/32 phylogeny confirms that the Andamanese were the genetically oldest Indian colonizers along the southern route of migration during the Pleistocene. This antiquity ensured that the Andamanese partook of the Gondwana mythology, and their continuous stay in mainland Asia eventually permitted them to absorb some motifs like the fire myths of South-East Asian origin, the separation of heaven and earth, etc. It is evident that their mythological patterns are congruent with the migration routes of anatomically modern humans. The Gondwana pattern confirms their Out of Africa exodus, and the (later) Laurasian pattern appears with their later spread and return migrations. Andamanese mythology suggests an "interim cluster" as it was genetically a part of the Southern wave of migration; as such, it carried along primordial Gondwana mythological features. Its rare Laurasian connectivity reflects its later isolation in the Andaman Islands.

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Avoiding Dogma:
Our Differences Regarding Chronology and Other Matters

Harold C. Fleming
Gloucester, Mass.

Below one will find a copy of a letter sent to four distinguished colleagues in 2002. Since the matters were quite important, and since not one of them ever responded to the letter, I think it better to bring the whole thing to the attention of our members. Perhaps they can tell me wherein I err, since my quartet of *distingués* could not or would not do that. *Besides, the stuff is interesting!*

It will be my pleasure to honor the opinions of our members. If the common opinion be that I should sit down and shut up, I will comply. If that opinion be otherwise, such as recommending that the colleagues answer the letter, then we can jointly demand such. If, *au contraire*, our members are bored and non-responsive to the matter, it would be wise for me to call out *"Basta!"* for these twenty-three years of effort on behalf of long range comparison. Hey, as my children would say, if nobody gives a damn, then why bother?

On a more analytical note one can point out the obvious but politely concealed truth about ASLIP. We have been a coalition of disparate groups, barely escaping open conflict with each other, varying greatly in our allegiance to the common goals, with a substantial amount of individual career pursuit, not to mention the occasional empire builder. *Alors!* We have been like the Democratic Party in the United States. Our Obama has come and gone – he was called Joseph Greenberg – and we cannot wait much longer for another.

What do you think we should do?

* * * * * * *

Addressed to: Late summer 2002 AD

Messieurs and doctors: **Murray Gell-Mann, Sergei Starostin, Merritt Ruhlen, Christopher Ehret.**

The **subject:** our frequent disagreements on linguistic dates and (occasionally) lexicostatistics.

The **tone** or emotional atmospherics: Friendly, non-destructive in intent but vigorously argumentative at times. *Ad hominem* attacks are eschewed but social and stylistic observations do have to be made (once in a while).

Reason or purpose of letter: We have gotten to the point where the dates of linguistic stages or splits or events have to be located in time (and space too) in order to relate to each other and to archeological and/or bio-genetic dates and developments. Besides we need to quit squabbling about the dates of things.

Coming from the marvelous week in Santa Fé with the fruitful conversations and interpersonal good will and warmth, and knowing full well that each and every one of us is striving for the same goal but with truly cooperative attitudes at our mast heads, it is a rare period and time for discussions which I have been hoping to have for the past fifteen years! There are times to strike, to venture, and there are times for quieter reflection. This is a time to venture.

One of my most enduring memories of our last banquet is Murray's statements about how young or recent so many linguistic events are turning out to be and how we would have to adapt our thinking to "recency" (not a quote). What with the shock expressed by almost all of you at my dates for Afrasian (Afroasiatic) – way too old – and your united defense of Richard Klein's "Aurignacians" and their 50,000 more or less dates I left the banquet with the distinct feeling that I was out of step with the rest of you and almost certainly deficient or "challenged" in dating linguistic events. Fortunately (for me) I am not "other directed"; I do not give way to group opinions or at least not easily, unless they clearly are well reasoned and convincing.

Besides that I do not believe that each of you reached your conclusions independently. There was obvious belief in, or acquiescence to, the ideas of Sergei Starostin. However, that statement does not necessarily include Chris Ehret whose views are distinct and not usually presented openly. May I list then a series of statements made by Sergei or ones made by colleagues in Moscow (usually Militariev)?

1) We have a **new dating system**, invented by Sergei, which is an improvement on Swadesh's glottochronology. One crucial part of it is the treatment of borrowings or other negative factors found on a standard Swadesh list comparison of two languages. Since I heard this in August of 1986, just 16 years ago, from Militariev in Moscow, I cannot remember exactly what the full statement was.

2) From a few specific dates offered as examples of Sergei's work (by Militariev again) it became clear that "Sergeichronology" gave dates appreciably younger that those I got.

3) A few times in print and then in person at the supper table at Hotel Santa Fé Sergei opined that a glottochronological score (percentage) under 5% – like my very low Afrasian scores between Omotic and Berber or Semitic – was invalid because it showed that the languages could not be related to each other. Why? because the percentage was statistically too low. That statement surprised and amazed me because it confused the statistics of glottochronology and/or lexicostatistics with the evidence amassed to show a genetic relationship between two or more languages. Neither Swadesh nor Greenberg had held such an opinion, at least that I knew of. We will return to this point below.

4) Glottochronology was heavily involved in classification or so it seemed. Sergei seemed to lack a distinction between lexicostatistics and glottochronology; they

are like Siamese twins but they have been separated successfully without killing either one – in American thinking. One can be used for sub-classification or internal taxonomy while the other is used for dating. Even Bender who used to use lexicostatistics for overall classification has stopped doing that. Otherwise you have no control over borrowings and look-alikes and you can end up putting Thai in Sinitic as was done for decades until Benedict quashed that.

Now it would be appropriate to spell out in more detail just what "Sergeichronology" is, what its main tenets are, why it gets such young results or shallow prehistory, etc. But this cannot be done by imagination. Once in the 1980s I tried to figure out what Sergei was doing and I published those thoughts in *Mother Tongue*: The Newsletter. Militariev at least read it and replied "nice try but no cigar!" I tried many times to contact Sergei and it became a sort of joke among some of the Americans. Never did he respond and here we are talking about five to ten years. It was not that unusual. I heard nothing from Dolgopolsky for longer periods than that. Even Greenberg never bothered to answer my letters for the first five or six years.

However, Sergei took umbrage at the above statement when I made it last week at our banquet. How could I say that his glottochronology had not been presented to the scholarly public when he had been to Renfrew's conference on linguistic dating? So I waited the better part of fifteen years to be told what his methods were but I should have been satisfied because the matter came up at a conference I was not invited to. So I guess it is my fault that I still do not know what his methods are!

I have come close to finding out about "Sergeichronology." M.L.Bender thought he knew what Sergei was saying and Bender opined that the method was probably worthless. But that didn't really help much. My friend and MT-colleague, Sheila Embleton, did go to Renfrew's conference and has an opinion about "Sergeichronology." I'm still looking for her manuscript which got misplaced a while back. (She's now an academic Vice President and I hesitate to bother her!) At the beginning of her paper she seemed to look favorably on Sergei's contribution. But she is a sweet and polite person and one would have to read her paper carefully to detect her true opinion. But let us assume that Sheila liked Sergei's paper, with or without some modifications she may have recommended – or not.

So we cannot get a final reading on "Sergeichronology," although one day we may get Sheila's opinion. As a sometime Yale student with a heavy background in mathematics she has high credibility with me anyway. .... So the problem reverts to "Halchronology," *i.e.,* what's wrong with what I do or where have I made my mistakes or whatever?

Well, my case is fairly straight forward and clear. I am a traditional camp follower. I use the standard stuff put out by qualified mathematically-informed linguistic date seekers. Starting with Morris Swadesh, Sara Gudschinsky, Dell Hymes and culminating with Kruskal, Dyen and Black. I actually went to a conference on lexicostatistics and glottochronology at Yale in the 1970s and learned a lot. Throughout my entire career I have remained an innumerate (so-called). I don't like mathematics – 'tis dull – and consider it the most over-rated part of the social sciences. No doubt it does wonders in physics. But the point is that I do no original work on the math of this business; I leave it all to the experts. And it was with great surprise that I found yet another expert in 1987 in – of all people – my uncle Joe Greenberg. Besides clearly disliking Swadesh, Joe had always denigrated glottochronology. It turned out

that Joe also had a background in mathematics and for some reason included a short but highly useful section of his Amerind book on glottochronology. Amazing! (Actually Swadesh was also weak at math.)

Now we come to the clearest point of the problem – my Afrasian dates. They are quite old and they shock some people, apparently including the four of you. As I said several times in Santa Fé proto-Afrasian is at least 20,000 years old and by one reckoning 30,000 years old. In my paper at the annual meetings of the American Association Of Physical Anthropologists I split the difference and called it 25,000 years old. (At that same meeting Chris Ehret put the date at 16,000 and more, but did not mention how it was calculated.) Where did I get such a date? The process is clear enough, as follows:

First, select the phylum to be dated. Choose by the quality of work done on it.
Second, select specific languages to represent most or all salient internal taxa.
Third, set out the data in terms of dominant forms per meaning, noting borrowings.
Fourth, reckon cognation as between forms in all languages, *i.e.*, score the cognates.
Fifth, count the cognates found between any two languages and obtain a percentage.
Sixth, look up the chronological value for any given percentage.

In the most modern or recent proposals, which Embleton has offered to help me with, one may consult a computer program which calculates a value for each word, thus giving the ultimate or super-Joos value. Note that most of the steps are linguistic ones, rather than mathematical which is confined to the last two. It is not clear how much the value of the conclusions is increased by the extra Joos work.

Just to remind you → In the Joos calculations it was acknowledged that there was no uniform or homogeneous retention rate for the 100 words. Rather Joos (Martin Joos) calculated that there were eight sublists with the following retention rates:[1]

2% of the list has a rate of .96
7 % of the list has a rate of .93
17% of the list has a rate of .89
24% of the list has a rate of .84
24% of the list has a rate of .78
17% of the list has a rate of .71
7% of the list has a rate of .63
2% of the list has a rate of .54

It is easy for me to see that Joos's rates are meant to fit mathematical formulae, not the reality of actual retentions (in actual languages). Part of the reason for having a calculated rate for each individual word (Swadesh meaning) can be found in Kruskal, Dyen and Black's actual count of

[1] Taken from Joseph H. Greenberg *Language in The Americas,* page 344. The empirically ascertained rate of .80 per 1000 years is then the sum of (the above eight rates).

retentions in Indo-European, Cushitic and Philippine languages. In tendency they acted like Joos retentions but in fact they differed individually. (A copy of their calculations is enclosed.) Having gotten 1% or 0% or 0.9% or 1.8% and such like between the extremes of Afrasian, I bore the general conclusion of "zero to one percent" to compare with Greenberg's results and with Kruskal, Dyen and Black's (KDB) results. Greenberg gave me two choices: (a) on a standard, unchanged or original Swadesh list one got 0% at 20,000 years, or (b) on a Joos type list one got 1% at 20,000 years. In addition Swadesh himself had once calculated a date of 21,000 more or less for a 1% retention. (I quoted it once in *Mother Tongue*.) What reasonable person would not have concluded that these respectable authorities were giving us a date of 20,000 or more for proto-Afrasian? (I enclose a copy of Greenberg's tables.)

Finally, turning to KDB, by far the more sophisticated source, I applied the 1% figure to their charts with their giant asymptotes at those low numbers and estimated the years at between 17,150 and 44,100 with midpoint value of 30,625. At 0% there was no basis for estimating from their chart so I called it Unknown. (The rest of that paper was devoted to choosing between Greenberg's and KDB's figures; I finally chose the latter.)

So that is where we stand with "Halchronology" dates for proto-Afrasian. Do feel free at any time to tell me what is wrong with these dates!

Another thing or two. First, it is painfully clear that we reach the end of our effectiveness when we reach 0%. So no phylum older than Afrasian can be dated by glottochronology. PERIOD! But second, Niger-Congo is apparently the same age as Afrasian because people have published percentages of around 0% to 1% between Mende and Kordofanian or West Atlantic and Kordofanian. I'm not sure what they get between Mende and West Atlantic which may be just about as old. For Khoisan every indication is that proto-Khoisan is slightly younger than proto-Afrasian – by Ehret's percentages of 1%-2% more or less – or much younger if we take George Starostin's much higher figures. I have no principled basis for choosing between the two sets of percentages but intuitively I'll bet on the lower figures.

Back to **3)** on the first page. About glottochronology and common retentions below 5%. I think Sergei is really confused here and apparently has confused Murray too. How can two languages be related when their common retention is 5% or lower? The theory back of this is statistical and quite clearly irrelevant! The first question is why are relationship statements limited to two languages? In fact most of the time we classify groups of three or six or scores. The "binary bit" as Joe Greenberg often argued, is not a necessary part of our inquiry and indeed distorts things. The second question is, if A is related to B and B is related to C, then why is A not related to C? Uncle Joe called it the principle of transitivity. Mande of Niger-Congo might have only 4 words in common on a Swadesh list with Heiban of Kordofan but that is far from all the evidence we have that Mende and Heiban are related. What about the 30 other Kordofanian languages and the 27 other languages in the Mande group of Niger-Congo? The next question would be – what about morphology? My late friend Robert Hetzron and many of his fellow Semiticists thought that grammatical evidence was the only important evidence we had or, if lexical evidence had any importance, it was truly secondary. There have been baseless charges hurled at Joe Greenberg to the effect that he only used lexical evidence and some British boneheads thought he only used Swadesh lists of Basic Vocabulary. Some of this irritated Joe and he would repeat again and again that he never classified on the basis of

"only lexicon" or "only grammar." In all of his African classifications he used grammar liberally, as well as vocabulary. Indeed he was a man who read grammars for pleasure, much like I read Patrick O'Brien's sea stories for pleasure!

But let me cite another well-known historical linguist, albeit one not quite so accomplished as Joe. Isidore Dyen, another famous Yale professor, used to say that he would use any scrap of information that was relevant if it helped him classify a language. Dyen was very active in glottochronological study and indeed helped to save it for posterity (in the 1960s) by helping Swadesh cope mathematically with the many criticisms of his work, especially from the mathematically inclined. As far as I know, Dyen never confused glottochronology with taxonomy, although he used lexicostatistics in sub-classification (as we all did). Finally, I have told lots of linguists, especially Afrasianists, about the very low percentages of basic vocabulary between some Omotic languages and northern Afrasian languages like Berber and Semitic. None that I know of have had the reaction that such a fact in itself would deny a genetic relationship. They all saw it as a statement about time of separation rather than an argument against genetic relationship. One senior Afrasianist, Paul Newman, did challenge the membership of Omotic in Afrasian but only because he thought the total evidence was inadequate, not because of lexicostatistics or glottochronology (which he cannot abide.) Later on, Paul changed his mind about Omotic but again in his taxonomic thinking neither lexicostatistics nor glottochronology had anything to do with it! Hans Sasse, a very bright young German linguist, did also challenge Omotic but his complaint centered on grammar, not the lexicon. ..... I rest my case.

In the case of Omotic there is a general difference between Russian reactions and those of western Europe and the USA. Westerners generally-speaking approved of Omotic – with the usual reservations by some – with the exception of a few scholars who objected to the removal of Omotic from Cushitic. (It had been the western branch of Cushitic.) The Russian reaction was exemplified by Aharon Dolgopolsky who said the whole matter of Omotic was to be held in abeyance until proto-Omotic had been reconstructed. Omotic might very well be a distinct branch of Afrasian (Semito-Hamitic to him) but it was all very shaky until it was *proven by reconstruction.*

In an article submitted to *Mother Tongue* (1995) Greenberg argued against the notion of "proof" basically because it was a mathematical concept and one mistakenly imposed on a scientific field it was not suited for.. Mathematical proofs are often called analytical propositions in philosophy because they are matters of definition; their truths are all contained within themselves. In empirical science testing of or confirmation or rejection of hypotheses are not matters of mathematical proof but rather of confrontations with the data, reality, facts, or whatever you want to call the empirical aspects of things.

Let us ask Aharon the $64 question → How does a reconstruction prove something? Or what does a reconstruction prove anyway? Or what do we know about the validity of a language classification after a reconstruction that we didn't know before the reconstruction? Can reconstruction or the statement of "sound laws" take place in the absence of the original etymologies of the original classification? Is reconstruction anything else than a way of spelling out or elaborating on the original etymologies? Finally, can a poor, lousy or otherwise inadequate reconstruction – such as recent ones in Afrasian – really be a valid test of a genetic

relationship? Since early reconstructions of proto-Indo-European differed from later ones and those from more recent ones, at which point can Indo-European be said to have been validated

Mind you, I am not at all opposed to reconstruction as a task in its own right. It can be informative, pleasurable, fruitful and something to admire, like some of the recent reconstructions of proto-SAK or proto-Khoisan presented at our Santa Fé workshop. What I am opposing is the sweeping over-simplification of our work called proof by reconstruction. It is basically an Indo-Europeanist invention made long after the validity of I-E had been accepted by the linguistic world and a dogma held by Russian historical linguists long after its usefulness had expired.

One of the questions we raised in *Mother Tongue* over the years is this → why is one of the smallest or least diversified linguistic phyla given such great importance in the theory and methods of historical linguistics? Yes, Indo-European is what I'm talking about. As Merritt Ruhlen used to say, is this another case of Euro-centrism? It is not that Indo-European studies have taught us so much more than any of the other area phyla. After all this is a phylum with many times the number of scholars and much, much more money than, say, Penutian studies, Bantuistics, Semiticistics, or Sinology. Yet I-E studies after two centuries of the most intensive research of any phylum on earth has not been able to reach agreements on its own internal taxonomy, its own homeland, its own "exact" reconstruction, its own time depth (although Renfrew gets some credit for creating confusion), but above all its own relationship to the rest of the languages in the world. Arrogant and proudly isolated Indo-European scholars deign to instruct the rest of us, even about things which they do not know much about – like remoter relationships or how to proceed with classification or how to work with unwritten languages or how to begin the "comparative method" in a new linguistic class whose etymologies are not already established.

I have to tell you a short story. There was a young German linguist, very bright and ambitious, who apologized to a group of fellow Africanists for "using Indo-European methods." Apparently some of his colleagues in Germany and/or Africa disapproved of his use of Indo-European theory and methods. That really shocked me! Yet it showed that there were independent centers of inquiry which did not automatically genuflect before *Indo-Europeanismus*. This caused me to notice that contemporary American historical linguistics has totally surrendered to the belief in Indo-European superiority. Yet back in the 1950s there was a strong and healthy Americanist tradition, in which Kroeber, Sapir, Swadesh and Greenberg participated, which respected Indo-European scholarship but did not kowtow to it. Both Swadesh and Greenberg produced Amerind hypotheses. Sapir got much of the same realm in a few groups, while also proposing Sino-Dene. How much of that progress do you think they would have made if they had been brain-washed in I-E theory and methods, like the current generation of timid souls?

Amid the long, nearly interminable arguments we had at Cold Spring Harbor a few years ago there were two points of contact with archeology. One was the date of Amerind arrival in the New World; the other was the estimated date of Australian aborigines reaching Australia. This year we added a third dimension, viz., the correctness of Richard Klein's date for the first appearance of human language (circa 50,000 years ago). Merritt defended what he saw as Greenberg's position that first settlement had been the so-called Clovis horizon (circa 11,000), while I declared that there was an archeological "Maginot Line" to block all attempts

to show earlier archeological cultures in the New World. I maintained that Joe didn't really care about the Clovis date, having chosen it as a matter of convenience. Merritt was quite sure that Joe committed to those dates. I pointed out the five major sites where archeologists had claimed to have much earlier dates (Pittsburgh, Texas, Brazil 1, Brazil 2, and Chile), going back as early as 28,000 at Scotty MacNeish's site in Texas. Merritt denigrated and denied the validity of each of those dissenting dates. Although we fought to a draw on that matter, it is a fact that the bio-genetic dates (estimates of course) have consistently run more in the direction of the Texas site dates than those of the Clovis horizon. Since I had spent considerable time and energy reporting and discussing each of the dissenting sites and dates in *Mother Tongue*, I was rather irked by Merritt's dismissal of the lot of them. Now who is the establishmentarian I wondered. But let us face it! The freeze is in effect. You ain't gonna get an American archeologist to admit one bloomin' potsherd before the Clovis horizon and that is that!

[**Post note.** By 2008 we could see that prediction falsified. Archeologists have broken through their own Maginot Line!]

The next question had to do with Australian antiquity. Sergei denied that there was such great time depth in Australian, since he had been to Australia recently (talked to Dixon and his renegade colleague, Aichenwald) and Australian had "not been reconstructed" yet. The fact that some good Australian colleagues (*e.g.*, Geoff O'Grady) had been saying for years that there was very great diversity in northern Australia was dismissed, *simplement dit*. Later on, this year, Murray mentioned that Pama-Nyungan was only as old (or deep) as Indo-European. Yet a while back in *Mother Tongue* Geoff O'Grady did a formal lexicostatistical count within Pama-Nyungan and got about 6%. That's about 4000 years older than PIE by Greenberg's Joos table. It is also a fact that both Swadesh and Greenberg told me (personal communications both) that Australian was very deep and it was going to be hard to relate it to any phylum outside of Australia. And there are archeological dates as early as 60,000 years ago.

It really is time to wind this up or it will be too heavy to mail. We arrive finally at the Klein thesis. Basically, he is saying that (a) early Homo sapiens in the Levant was too primitive to have "true" language, and (b) the cultural or behavioral complexity of the Aurignacian era indicated the achievement of "full" language, and (c) the great human diaspora out of Africa began around 50,000 years ago. Klein is also very bright and ambitious. However, in the course of thinking about his thesis over the past year I have concluded that all three of his premises are FALSE. My response will be kept simple. (A) Phil Lieberman states very clearly that those human beings of 100,000 in the Levant were fully capable of human language and undoubtedly spoke. (cf. his book *Eve Spoke*); (B) cultural and behavioral complexity is a weak reed on which to hang the advent of language. If art be a measure of that complexity, then Alison Brooks tells us that we have that in southern Africa by 77,000; there was also harpoon hunting in Uganda circa 90,000 (Yellen, et al.); (C) The great African diaspora towards the north began in 100,000 but was unsuccessful in competition with Neanderthal at least in the Near East but there is a suggestion that it got to India (Alison Brooks has one 100 kya date there). The next great northern diaspora is fairly well documented and fits Klein's scheme quite well. Starting around 55,000 in Egypt and moving thru the Near East to Europe after that (proper Aurignacian) and also to Central Asia and thence to eastern Siberia by 30 kya, (so saith Ofer Bar Yosef). Alison Brooks has another date in India – 40,000. But the southern diaspora does not seem to conform to Klein's scheme. More agreement on Australian and Papuan dates would help us

resolve this. But there is an unexplained date in Malaysia of 80,000 which Michael Witzel told me about. We will have to look into it more deeply.

Okay, now we have to end it. I'm sure that I have annoyed or even angered some of you or all of you. But my friendly intentions ought to be evident. But also my scientific concerns. I see you guys heading for a paradigm of shallow prehistory while everything about the whole scene screams "older, older!" at me. So I am bound to argue the point with you. If we are unable to agree, perhaps we can find some tests or natural experiments which can help us resolve these disagreements. In any case we are not in a love affair; this is an affair of the head!

Most cordially,
Harold C. Fleming / Hal

Messieurs and doctors: **Murray Gell-Mann, Sergei Starostin, Merritt Ruhlen, Christopher Ehret.**

The **subject**: The same but focused on reconstruction.
The **date** : Two weeks later and a true addition because nobody answered me yet.

Long before Greenberg died, we Long Rangers divided ourselves up into the Taxonomy First moiety and the Reconstruction First moiety. Probably the first question posed by the Taxonomists was: how can you do reconstruction at all if you don't know who is related to who(m)? Does not the kind of reconstruction peculiar to historical linguistics and its "famed" comparative method presuppose that genetic links exist and that particular blood lines or sub-classes exist within an overall family tree? Now I do know that a lot of linguistic training and hence traditions might be characterized as "rote learning," *i.e.*, a teacher tells his students the rules and they tell their students these rules and everyone insists that the rules must be obeyed. But the insistence on reconstruction first seems to be the kind of rule whose only justification is rote learning. Otherwise it makes no sense! Do you think it does?

One reason for this is apparently quite complicated. It seems to consist of a distrust of raw data and a preference for sophisticated or more abstract or "regularized" data. For, clearly, reconstructed data is not raw data, is not first order or empirical data; it is worked-over data or prepared data. (Common enough in the various sciences to clean up, regularize or prepare data for its use in various enterprises.) I suspect that there is a historical reason for this preference in historical linguistics → it comes from working with ancient texts and written languages where one has to be very careful what actual phonetic values are assigned to each letter or word. Why? Because the scribes had different alphabets and different understandings of the phonetic values and also because the writings came from different time periods wherein there were actually different phonetic values in the words themselves. But there also seems to be a kind of contempt or unease with raw data, the stuff of field notes which get regularized themselves by the field worker and her choice of alphabet and the care and quality of her hearing. Otherwise it is hard to make sense of Greenberg's observation that many Nostraticists only worked on languages with reconstructed forms and who refused to work on taxa which lacked reconstructions, *i.e.*, who refused to deal with raw or partially cooked data. Why then are the

starred (*) forms preferred to the field data? I guess because they are older, they escape dialect problems, they have been worked over by experts, and they are more abstract. What may not always be mentioned is that they can be put into a rational system of phonetic correspondences, a reconstructed proto-language. Now that – they would say – that is dependable data!

Let's make an analogy to biology, as Uncle Joe and Merritt have been fond of doing. Suppose we take the class of animals who are closest to us humans → mammals. Let us also suppose that paleontological specimens are the equivalent of reconstructed data. Let us then suppose that we wanted to work out in detail some family trees (internal taxonomy) but restricted our data to paleontological specimens. All those varieties of squirrels, bats, gazelles and antelopes, felines, and New World monkeys who we know from field observations in modern times would be down-graded or disallowed in our taxonomy! Indeed Darwin would have found his task impossible without the living populations of animals because paleontology was not so advanced in the mid-19th century. To put those restrictions on in the first place is simple folly! And by analogy so was the behavior of those Nostraticists!

Is the goal of reconstruction to test the validity of a taxon, a proposed genetic class? Or is it an end in itself, an attempt to obtain a more or less perfect version of a dead ancestor? Of course, the theoretical argument which we have already confronted would say that the test of validity is the true goal of reconstruction. But the behavior of reconstructors and the results of their work suggest that reconstruction per se is the goal.

There are, of course, other goals. In our discussions on Khoisan (in Santa Fé) someone asked what the goals of our talks were. Sergei immediately replied that reconstructing proto-Khoisan was our goal – above all. Chris seemed to agree with that. Since no one disagreed or no alternative was advanced, I took it upon myself to register another disagreement, although no one seemed to hear me. (One can get quite uncomfortable being negative so frequently.) There were in fact two good alternatives; one was to discuss the prehistory suggested by the age and presence of Khoisan in eastern Africa. The second, and even more interesting one, was to relate Khoisan genetically to some other phylum or phyla. Upon doing that, naturally, we would be much closer to our long term goal of the grand taxonomy of Homo sapiens daughter languages. A third goal does suggest itself now, although no one mentioned it before. That would be to go over the data, increased as it has been in the past 40 years since the original Greenberg classification, and build up the corpus of etymologies and examine the difficult matters of sound correspondences between northern and southern varieties of Khoisan. Then one could undertake the reconstruction of proto-Khoisan more readily and one could feel more sure of the whole phylum as a genetic unit. One reason for doing that, of course, was that Rainer Vossen was far less sure about Khoisan than the rest of us and did register dissent at one point about the inclusion of Hadza in the phylum. (I did not include my friend Rainer in this mailing because he is not a Long Ranger and does not share our ambitions re taxonomy. This is not to deny that he might get interested in the future.)

RE the behaviors of reconstructors. I had a short talk with Michael Witzel, president of ASLIP and a chaired professor of Indo-European (Sanskrit) at Harvard. He said that the reconstruction of proto-Indo-European (hereinafter PIE) was basically finished a century ago. Much polishing of various aspects of PIE has occurred since then but, if a successful reconstruction be a test of the validity of a phylum, then IE was validated 100 years ago. Since then the Neo-Grammarians have demanded tighter and tighter controls, what linguists love to

call "rigor" and Russian linguists love to call "absolutely exact," or words to that effect. Given this, then why did Ivanov and Gamkrelidze need to propose a whole new phonology for PIE? Why did PIE require glottalized consonants to validate itself? A simple answer is → it didn't! The two gentlemen were playing with the ancestor, polishing its appearance, most probably to assist in PIE's etymologies with Kartvelian and Afrasian within Nostratic (both heavily glottalized). One is permitted to doubt that either one of them doubted the validity of PIE or had testing that validity as a goal. Bomhard also accepted and vigorously promoted a glottalized PIE. Since I know him much better than the other two, I can say flatly that validating IE was never one of his concerns; he assumed it was valid. He was interested in Nostratic too.

Aharon Dolgopolsky played with the received phonology of proto-Semitic in order to reflect its membership in Afrasian; he derived the famous (and difficult) emphatic consonants from glottalized ones. His reasons were partly empirical in fact because some of the southern varieties of Semitic (the 4 or 5 Modern South Arabian languages and around 20 Ethiopic) had and always had had glottalized consonants. But the validity of the Semitic family of languages which had several centuries of existence was neither threatened nor even doubted by Aharon.

Aharon also attempted a reconstruction of an invalid entity. According to Paul Black (Yale PhD in Eastern Cushitic, 1975), Aharon's Cushitic reconstructions were interesting, even exciting, despite the fact that he had the internal taxonomy all wrong. Apparently, Aharon "proved" that his sub-classification of Cushitic was correct because he was able to reconstruct proto-"Cushitic." An agile and determined mind can do wonders when it wants to!

In his Amerind book Greenberg mentions the case of the Tuscarora group of Iroquoian languages whose genetic validity was no longer questioned but whose reconstruction defied all attempts. Now it is worth noting that the assumption that reconstruction is possible has always been a corollary of the Reconstruction First school. Naturally there must be cases where nobody has tried very hard to reconstruct the ancestral language (*e.g.*, proto-Omotic) but Tuscarora is a case where serious efforts have been made but failed.[2] Anyway Greenberg wrote a lot about reconstruction in his Amerind book which I am trying hard not to steal from.

I'll tell you a brief Ethiopian story. About a donkey. In Ethiopia it is generally the rule that sweet persuasion is not the dominant mode of procuring work from donkeys. The laying on of sticks and curses is the preferred method. One day a man (Tadesse) came upon another man beating his donkey most severely. By deduction and observation Tadesse saw that the beating would never get good results. So he told the man to desist for good reason. The donkey was dead. Thus the other man came to realize that his efforts were in vain. So the expression – don't beat a dead donkey! – came into the language. It is now time to quit beating this moribund ass but I will make just a few more observations on the subject of reconstruction. For your entertainment.

Uncle Joe once observed (to Merritt I believe) that it was surprising how different two reconstructions of proto-Afrasian (hereinafter PA) were, particularly since they were supposed to be retrieving the ancestor of this group of 260 ± languages. Neither could be said to validate PA since each could accuse the other of being mistaken. Each had a number of short-comings,

[2] I must confess that I went to find the exact reference in Greenberg but could not find it! Either it was not the Tuscarora or I read it in one of Uncle Joe's other writings. Sorry!

the one being quite biased towards northern members of Afrasian, while the other had a semantic looseness combined with an extraordinary number of proto-phonemes, *i.e.,* it was biased towards phonological precision (as so many reconstructions are.)[3]

However, there is another example that shows this point even more. A colleague of mine, a senior scholar who I like very much, sent me his new book on PA. Pleased and excited I read it → until I came to a horrified conclusion. Here was PA, the ancestor of a family of languages famous for their laryngeals and pharyngeals and harsh glottalics and the ancestor was entirely composed of plain consonants, like one of those easy Eurasiatic languages. Good Lord, said I, how could he have so twisted the "comparative method" that he eliminated the one group of sounds that people remember these languages for? So poking around in his introductory pages, I discovered that he had made them "go away" on evolutionary grounds. Huh? Yep, he determined that PA must be pretty old (15,000 +) and, that being the case, it must have been at the primitive stage of development which we "know full well" from evolutionary studies included only plain consonants. Simple to complex was his rule, so the harsh pharyngeals and exploding glottalics came from simple commonplace things like /p t k/ etc. How this reminded me of Ivanov and Gamkrelidze and Bomhard. We think that the proto-language must have been a certain way and, by gum, we'll make it come out that way! A triumph of deductive reasoning over both empirical data and the "comparative method" as usually understood. In a most profound sense this is not the way to test the validity of a genetic taxon.

Okay, one final point. Just a minor empirical consideration. Take the famous case of PIE 'tongue' which has irritated Aryanologists for a long time. The supposed evidence of Old Italic grammar (or was it Old Latin) which had a *dengua,* or something like that, has been the basis for some to link up the *lingua* of Italic tradition to *tongue* of Germanic and some other branches. The supposed proto-form was something like **dnghwa* which must have been hell to pronounce. In Santa Fé Sergei was said to have proposed a **dl* phoneme to solve this problem. Of course it would help if we could find another example to **dl* to support this. But Carl Darling Buck suggested another alternative which I checked out. What if *lingua* was simply a different etymology, not cognate with *tongue* at all? Looking at PIE 'to lick', it was easy to see the likelihood that *lingua* was derived from that – a nice set of [l] to [l] correspondences throughout the range of the cognate.

There is always a drive to find a phoneme to satisfy two sets of etymologies mistakenly grouped together because of similarity. Whatever the drive is that pushes us towards these kinds of mistakes it ought to be acknowledged.

A final point about etymologies, especially in relation to reconstructions. When one proposes that a group of words in several languages (*e.g., lingua* and *tongue,* etc.) have a common ancestor, one is making a hypothesis. Like other kinds of hypotheses in scientific or historical scholarship, this proposal (this etymology) is testable / falsifiable. Usually such an etymology is bound up with many others in the bundle of proposed evidence for a genetic classification. Aharon, for example, has hundreds of these wee hypotheses in his grand

[3] Joe had an opinion on that too. On page 12 of his Amerind book he said: "However, a proto-language with, say, 125 phonemes is completely implausible on typological grounds." I cannot determine what those typological grounds are supposed to be or what he meant. I agree intuitively on some sort of natural language basis but must admit that we do have some natural languages with almost that many phonemes.

hypothesis about the Nostratic family. These are the true basis or proof of the validity of the genetic classification. Without them we have no evidence, except typology (an uncertain reed at best). And without them we have no good basis for reconstruction, at least in standard descriptions of the "comparative method" such as that of Raimo Anttila.

So it is possible to agree completely on a taxon or internal taxonomy, as Chris Ehret and I usually do, but to disagree on specific etymologies and/or specific reconstructions, as Chris and I have done on some Afrasian etymologies ('nose', for example). Those wee disagreements are what Luca Cavalli-Sforza calls "the details"; they can be worked out without changing the overall agreement on the taxon or its internal divisions. In fact they are still working out the details of PIE, even after more than a century of agreement about the general taxon.

Good day to you, gentlemen! I hope somebody does eventually get around to replying to my efforts herein.

Cordially,

Harold C. Fleming / Hal

Post Script. (As if everyone had not already read enough!)

There are two things I meant to mention from the beginning but kept forgetting because I was interrupted so much. You see, they are reconstructing my house and everything is up in the air, so to speak.

What I speak to are aspects of the behaviors of reconstructors – again. The first of these is the use of reconstruction as an accompaniment of classification. The second is the ad hoc use of reconstructions to support or justify an etymology.

For the first, let me use the high quality work of my friend and opponent, Robert Hetzron. Opponent because he insisted that the morphology and its grammemes was the best and only evidence to be used in classification. What Robert did was to use morphological evidence along with the criterion of *shared innovations* to make many detailed and probably correct changes in the internal taxonomy of Semitic. Such and such a grammeme was shared by several languages and it was a novelty. Therefore they had a special relationship. Thus he would work his way through a genetic class and establish sub-classes. Not necessarily a bad technique either because many (including Greenberg) used lexical or phonological innovations in classification.

What were the bases of Hetzron's innovations? Had he reconstructed proto-Semitic or proto-whatever to determine what was in the ancestor and what was not (*i.e.*, likely thus to have been an innovation)? No, he hadn't or so it seemed. He derived his information on retentions versus innovations from a place in his own head. He may very well have intuited what were true innovations and what were retentions. But he never laid out the ancestor for us to see. He merely insisted that he knew. But anyway hardly anybody ever asked him how he knew something was an innovation. Either because one did not want to show one's own ignorance or because he was widely regarded as brilliant. You can get away with a lot in linguistics! My own hunch is that Robert had an encyclopedic knowledge of Semitic morphology and simply reckoned that some things were likely to be in proto-Semitic or proto-Ethiopic and some were

not. His etymologies were good in their own right, not just because he claimed them as novelties.

The second is the ad hoc use of "reconstructions" when they suited one's purposes. We have all been encountering this sort of thing for ages. My first exposure came in the 1950s when I found French, German, and Italian scholars using ad hoc reconstructions to support an etymology. For example, [gaga] is related to [wiwi] because they are both from **gwegwo*, or something like that. You knew perfectly well that they had not reconstructed anything serious to derive these things from. They were making it up as they went along.

Some of the work on Nostratic shows this ad hoc type of reconstruction. Let me pick on my friend, Alan Bomhard, lest someone think that I was criticizing the Russians again. Time and time again Alan would propose a term for proto-Afrasian on the basis of one or two Semitic glosses, sometimes with an Egyptian or Berber cognate too. He would call them starred forms (with an asterisk), *i.e.,* descended from proto-Afrasian, But I knew perfectly well that he was making them up on the basis of Semitic (usually Arabic) and I yelled at him for doing so, partly because rarely could I find these so-called proto-Afrasian forms in Cushitic or Omotic. Alan reacted reasonably and did change over to more widely based etymologies. Then he was able to use Stolbova's and Ehret's proto-Afrasian reconstructions and the problem disappeared.

MOTHER TONGUE
Journal of the Association for the Study of Language in Prehistory • *Issue XIII* • *2008*
Twenty Years of Language in Prehistory • Ann Arbor Symposium • November 1988

Book Notices

Fleming, Harold C. 2006. *Ongota: A Decisive Language in African Prehistory.*

An international team rediscovered a tiny tribe of hunters, first discovered a century ago in extreme southern Ethiopia but never seen again. Now dying out, Ongotan culture and language are kept alive by 20 old men who resist the pressures of two outside societies. A short description of their language and ethnography (published elsewhere) are given more fully. The examination of Ongota reveals an Afrasian (Afro-Asiatic, Hamito-Semitic) language of marked dissimilarity to its sisters in grammar and a large lexicon with links to Afrasian languages spread over large sections of Africa. Ongota clearly is in a class by itself within Afrasian, even though loan words from nearby languages muddy up the analysis. Ongotan has serious implications for Afrasian prehistory as a whole and hence the prehistory of northern and eastern Africa. Traditionally, some scholars (especially geneticists) have assumed a constant flow of culture, language, and genes from the Near East to the west and south of Africa, especially the Sahara and the Horn. With the bulk of its deepest or oldest branches located in the Horn Afrasian must surely have expanded into the Near East from the Horn. Recent archaeology confirms this conclusion, as do palaeobotanical studies.

IX, 214 pages; cloth bound; ISBN10: 3-447-05124-8; ISBN13: 978-3-447-05124-8. Harrassowitz Verlag · Kreuzberger Ring 7b-d · 65205 Wiesbaden, Germany.

Babaev, Kirill V. 2008. *Proisxoždenie indoevropejskix pokazatelej lica: Istoričeskij analiz i dannye vnešnego sravnenija.* [Origins of the Indo-European Personal Markers: a Historical Analysis and External Comparison.]

This book is the first monograph devoted to the reconstruction of Indo-European personal pronouns and verb endings on the basis of both internal and external comparison, with the extensive use of diachronic typological data. The author reconstructs the path of development of the Indo-European personal markers from their ancestral forms, the independent personal pronouns of the Nostratic proto-language.

The book is addressed to a broad audience, including specialists in historical, comparative, typological and general linguistics, as well as all those interested in the origins and history of human language.

295 pp. ISBN 978-5-902948-30-8. Published by the Institute of Linguistics, Russian Academy of Sciences, and the Russian State University for the Humanities; Printed by Kaluga, Moscow: Izdatel'stvo "Ejdos."

Bengtson, John D. (Ed.) 2008. *In Hot Pursuit of Language in Prehistory: Essays in the four fields of anthropology in honor of Harold Crane Fleming.*

Compiled in honor and celebration of veteran anthropologist Harold C. Fleming, this book contains 23 articles by anthropologists (in the general sense) from the four main disciplines of prehistory: archaeology, biogenetics, paleoanthropology, and genetic (historical) linguistics. Because of Professor Fleming's major focus on language — he founded the Association for the Study of Language in Prehistory and the journal *Mother Tongue* — the content of the book is heavily tilted toward the study of human language, its origins, historical development, and taxonomy. Because of Fleming's extensive field experience in Africa some of the articles deal with African topics.

This volume is intended to exemplify the principle, in the words of Fleming himself, that each of the four disciplines is enriched when it combines with any one of the other four. The authors are representative of the cutting edge of their respective fields, and this book is unusual in including contributions from a wide range of anthropological fields rather than concentrating in any one of them.

XXIV, 476 pp. ISBN 978-90-272-3252-6. John Benjamins Publishing Co. Amsterdam / Philadephia.

Bomhard, Allan R. 2008. *Reconstructing Proto-Nostratic: Comparative Phonology, Morphology, and Vocabulary.*

This monograph deals with the comparison of Proto-Indo-European with various languages and language families of northern Eurasia, the Iranian plateau, the Indian subcontinent, the Near East, and northern Africa to determine whether or not there is evidence for a genetic relationship. The author concludes that the evidence points strongly to a genetic relationship within the framework of a "Nostratic macrofamily." Emphasis is placed upon traditional methodologies such as the Comparative Method and Internal Reconstruction.

This book is the first to deal with all aspects (comparative phonology, morphology, and vocabulary) of the languages and language families under consideration. Previous investigations into the possibility that Proto-Indo-European might be related to other languages and language families concentrated primarily on comparative vocabulary.

Publisher: E. J. Brill; Year: 2008; Pages: 2 volumes 1,811 pages; List Price: $446.00.

[*Mother Tongue* readers are welcome to submit book notices.]